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THE DEMOGRAPHIC AND CULTURAL CONSEQUENCES OF OLD WORLD
DISEASE IN THE GREATER SOUTHWEST, 1520-1660

The University of Oklahoma

PH.D. 1985

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THE UNIVERSITY OF OKLAHOMA
GRADUATE COLLEGE

THE DEMOGRAPHIC AND CULTURAL CONSEQUENCES OF OLD
WORLD DISEASE IN THE GREATER SOUTHWEST, 1520-1660

A DISSERTATION
SUBMITTED TO THE GRADUATE FACULTY
in partial fulfillment of the requirements for the
degree of
DOCTOR OF PHILOSOPHY

by
DANIEL T. REFF
Norman, Oklahoma

1985

THE DEMOGRAPHIC AND CULTURAL CONSEQUENCES OF OLD
WORLD DISEASE IN THE GREATER SOUTHWEST, 1520-1660
A DISSERTATION
APPROVED FOR THE DEPARTMENT OF ANTHROPOLOGY

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ABSTRACT

THE DEMOGRAPHIC AND CULTURAL CONSEQUENCES OF OLD WORLD DISEASE IN THE GREATER SOUTHWEST, 1520-1660

BY: DANIEL T. REFF

MAJOR PROFESSOR; RICHARD A. PAILES, Ph.D.

This study documents the demographic and cultural consequences of Spanish-introduced disease in northwest Mexico from 1520-1660. A related concern is the role disease played in native acceptance of Jesuit missionization during the late sixteenth and first half of the seventeenth century. To address these issues, historical and archaeological data were analysed. The results of the analysis indicate that at the time of Cortes' conquest of Tenochitlan, and for at least several decades thereafter, many areas of the Greater Southwest supported dense populations with sophisticated economic and socio-political systems. Data from the archaeological record and from the early accounts of Spanish explorers indicate this characterization obtained in many areas until the second half of the sixteenth century. At this time, the development of the Spanish mining frontier facilitated the northward spread of smallpox and other diseases that had become endemic in Mesoamerica. By 1590, many native communities in northwest Mexico were beginning to experience repeated outbreaks of Spanish-introduced disease. It was within this context that native peoples petitioned for baptism and missionization. The Jesuits, however, were

solicited for their managerial skills, particularly their ability to reconstitute native adaptive strategies that faltered or collapsed following epidemics. Similarly, through the practice and advocacy of Catholicism, the Jesuits filled a void left by the death or failure of native religious to chart a course through uncertain and inexplicable times. From the point of view of the indigenous population, acceptance of the Jesuits was therefore an opportunistic endeavor.

THE DEMOGRAPHIC AND CULTURAL CONSEQUENCES OF OLD WORLD
DISEASE IN THE GREATER SOUTHWEST, 1520-1660

CHAPTER I

THE DISEASE QUESTION AND ITS RELEVANCE

The history of the conquest of Mexico has been recounted by many scholars, a number of whom have noted the instrumental role played by smallpox in the surrender of the Mexica capital (e.g. Ashburn 1947; Crosby 1972; Stearn and Stearn 1945). Within months of the fall of Tenochtitlan, the great *zahuatl* spread to many parts of the Mexica empire as well as to Michoacan, Yucatan, and Guatemala. After ravaging Mesoamerica, smallpox was introduced in Panama, whence it continued south in 1525-26, killing the Lord-Inca, Huayna Capac, and more than 200,000 of his subjects (Cieza de Leon 1959: 52). Although precise figures are lacking, several million Amerindians surely perished during this first New World pandemic (Cloudsley-Thompson 1976: 83; Crosby 1969). Ironically, only a small fraction of those who died ever saw a Spaniard — most died having heard only rumors of the bearded strangers.

The smallpox pandemic that raged during and after the Conquest was the first of many epidemics during the early historic period in the Americas. Although this much is apparent, we know relatively little about the impact of Old World diseases outside of central Mexico and Peru (Dobyns 1976;

Sanchez-Albornoz 1974). In most areas of the New World the historical record is sketchy with regard to disease episodes and their consequences during the sixteenth and seventeenth centuries. Significantly, were it not for native historians and perceptive Spaniards who recognized the aftermath of disease (e.g. Craine and Reindrop 1970: 65-68; Landa 1941: 42; Recinos 1953: 115-116), we probably would be ignorant of the fact that smallpox out-distanced European penetration of Mesoamerica and Peru. Whether introduced diseases preceded Europeans in other areas of the New World remains uncertain, although anthropologists and historians increasingly have recognized this possibility, and for good reason (e.g. Dobyns 1976; Ewers 1973; Ezell 1963; Milner 1980). If what happened in Mesoamerica and Peru happened elsewhere, then many assumptions and inferences about the size as well as the structure and functioning of Amerindian populations may need to be revised. Similarly, empirical evidence of the early introduction and rapid spread of smallpox, malaria, and other maladies could profoundly alter our understanding of processes of enslavement and acculturation (Denevan 1976; Dobyns 1976; Jennings 1976).

The purpose of this study is to document the demographic and cultural consequences of Spanish-introduced disease in northwest Mexico during the period from 1520-1660. A related issue that also is examined is the role disease played in native acceptance of Jesuit missionization during the late sixteenth and first half of the seventeenth century. Included in the study area is much of what was termed Nueva Vizcaya during the early Spanish colonial period, and what is today Sinaloa, northwestern Durango, southwestern Chihuahua, and Sonora (Figure 1). Since both Spanish and native trade networks facilitated the spread of disease beyond Nueva Vizcaya, it

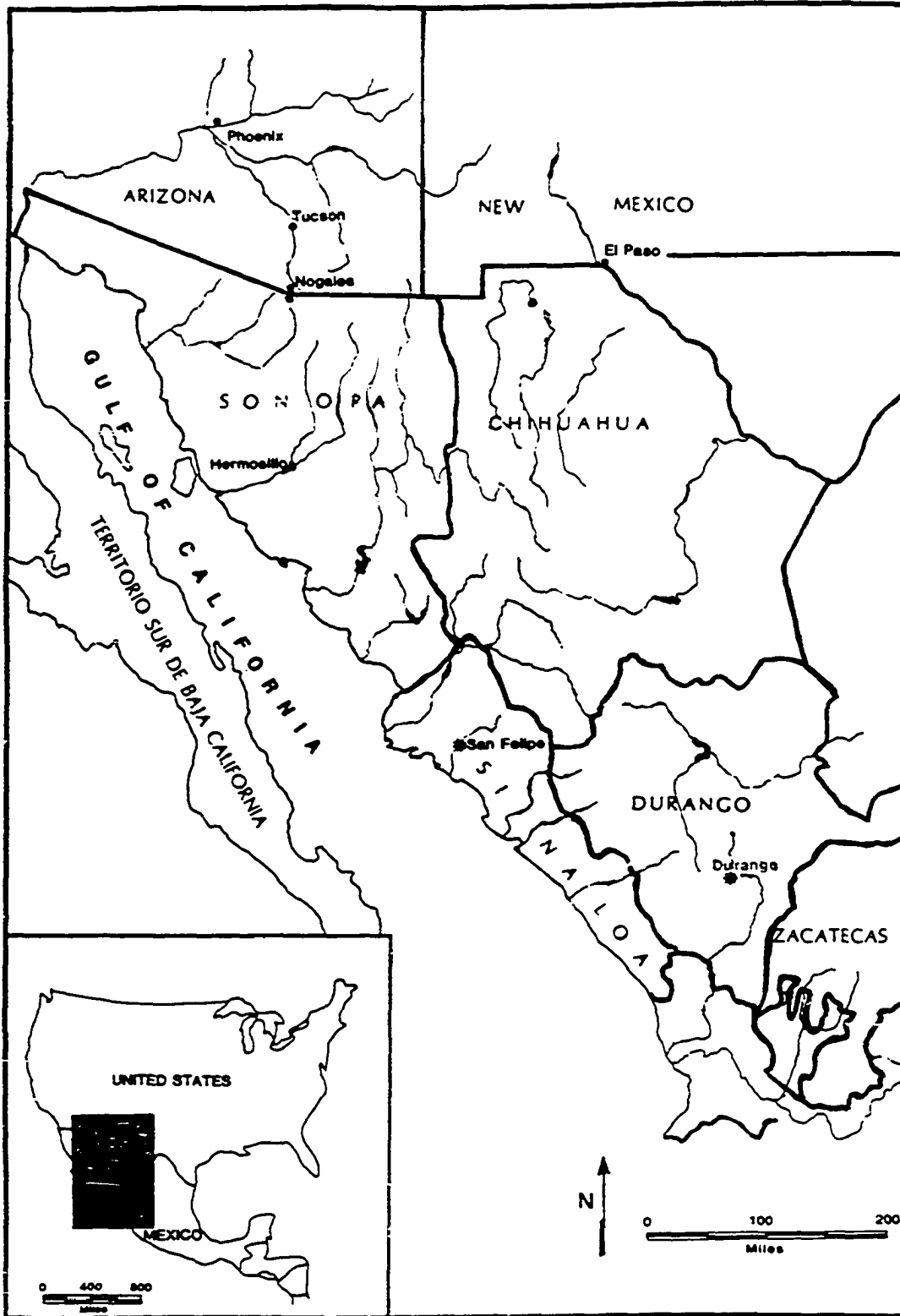


Fig. 1. LOCATION OF THE STUDY AREA

also has been possible to note the demographic and cultural consequences of disease among native peoples in the American Southwest. Data from southern Arizona and New Mexico indicate that, here, as well as throughout much of the "Greater Southwest"¹, Old World diseases destroyed a large segment of the native population and undermined the structure and functioning of native societies, thereby influencing acculturative processes.

The data to support this general conclusion have been gathered in large part from the annual reports and occasional correspondence of the Society of Jesus. In 1591, the Jesuits established their first permanent mission in northern New Spain. The mission was founded along the banks of the Sinaloa River at San Felipe, which was at the time the northern-most Spanish settlement along the western slopes of the Sierra Madre Occidental. Not long after the arrival of Fathers Tapia and Perez in Sinaloa, several Jesuits established a residence in Durango, several hundred miles to the southeast of San Felipe, along the eastern slopes of the Great Divide. From these humble beginnings, the Jesuits established missions throughout northwest Mexico. This remarkable feat was accomplished in a short span of about eighty years. During this time, well over 500,000 natives were baptized, the majority of whom settled in mission communities where they came under the protection and supervision of the priests. Not to be denied further converts, the Jesuits advanced into Baja California and southern Arizona during the closing decade of the seventeenth century. Missionary efforts continued in both areas as well as in northwest Mexico until 1767, when a bankrupt Charles III expelled the Jesuits from his overseas empire (Bannon 1955; Bolton 1936; Dunne 1940, 1944, 1948, 1952; Perez de Ribas 1896, 1944; Polzer 1976; Shiels 1934; Spicer 1962).

Although opposed at times by native converts and gentiles as well as by other Spaniards who coveted their vast economic and political corporation, the Jesuits experienced in northern New Spain one of the most successful mission enterprises in the history of the Americas. The history of this success is well documented in the priests' letters and reports as well as in the works of the Jesuit missionary and historian, Andres Perez de Ribas (1896, 1944). Significantly, the voluminous writings of the Jesuits contain a relative abundance of ethnographic data, along with countless references to disease and epidemics that ravaged northern New Spain. With these data it has been possible to document the demographic and cultural consequences of disease, particularly during the period from 1591-1660. Unfortunately, we lack a comparable source of data for the period prior to the establishment of Jesuit missions in Nueva Vizcaya. Historical documents from the period prior to 1591 are sparse and discontinuous, reflecting the limited Spanish presence in northwest Mexico during the seventy years or so following the fall of Tenochtitlan. There are several data sources, however, that shed some light on this earlier period. Of particular importance are the archaeological record and the accounts of Spanish explorers who penetrated northwest Mexico and the American Southwest between 1530-1565. Both data sources are utilized in this study, and are a valuable source of data for reconstructing native life in the Greater Southwest prior to the introduction of Old World diseases.

The Neglect of the Disease Question

The idea that smallpox, measles, and other diseases had a significant impact on native populations in the Greater Southwest is not novel. Some fifty years ago, in what remains the only detailed attempt to estimate the

aboriginal population of northwest Mexico, Sauer (1935) commented on numerous Jesuit reports of epidemics in Sinaloa and Sonora. Although Sauer failed for the most part to incorporate these reports into his demographic analysis, he nevertheless highlighted the potential significance of introduced disease. In recent decades there have been a number of studies by Dobyns (1962, 1963, 1966, 1976, 1976a) that also have emphasized the probable importance of disease during the early historic period. Still, the fact remains that Southwesternists generally have neglected the disease question. Indeed, there have been only a handful of empirical studies that have focused on the problem (e.g. Aberle et al. 1940; Dobyns 1962, 1963, 1976a; Meister 1976; Simmons 1966), and these pertain largely to the eighteenth century — some 200 years after smallpox and other maladies were first unleashed on the North American continent. One may reasonably ask why it is that so little research has been undertaken to assess the importance of disease.

Perhaps as McNeill (1976: 196) suggests, the disease question has been neglected because disease itself seems somehow too insignificant to be credited with important consequences. Living in an age of medical wonders, we tend to overlook the historical significance of diseases such as smallpox, cholera, or typhus — maladies which most Americans and Europeans have never seen or had to fear. Similarly, it is easy to forget that maladies such as measles and influenza, which today are viewed as relatively harmless, once decimated Amerindian communities (Ashburn 1947; Crosby 1972; Kilbourne 1975a; McBryde 1940). It is perhaps also true that the seemingly random or accidental nature of disease has discouraged recognition of its dynamic role in history (McNeill 1976: 196). This seems particularly true

today, when many anthropologists and historians emphasize the importance of analyzing history in terms of predictable events or changes (Bloch 1953; Cohen 1980; Harris 1968).

When my own interest in the disease question began to take shape I was persuaded that the reason why it had been neglected by Southwesternists was because of a lack of relevant data. It is difficult, for example, to determine on the basis of archaeological evidence whether populations in the Greater Southwest or elsewhere were affected by Old World diseases. Unfortunately, rarely do acute diseases such as smallpox or measles leave direct evidence in the hard tissue of those who have died from these diseases. Similarly, many chronic diseases produce morphologically similar responses in skeletal material, thus making it difficult to distinguish Old and New World diseases (Black 1975; Ortner and Putschar 1981: 105). In the absence of direct evidence, archaeologists must approach the disease question in terms of the behavioral correlates of disease episodes. Here too, problems arise. Rarely is it possible, for example, to establish with certainty whether an historic site was abandoned because of introduced disease, or because of drought, warfare, flood, or some other calamity that evokes similar behavioral responses as disease (Sorokin 1942). Distinguishing disease induced changes in material culture or other archaeological parameters is all the more difficult when, in areas like the Greater Southwest, the protohistoric period (A.D. 1400-1650) was a time of deleterious climatic shifts, rebellions, and warfare (DiPeso 1974: III; Gerald 1975; Hill 1970; Martin and Plog 1973; Weaver 1972).

For many years now, historians and anthropologists working in the Greater Southwest also have noted a lack of sufficient or appropriate

historical data to determine the impact of introduced disease. While a shortage of data may exist for some areas and for some time periods, an important finding of this study is that Southwesternists frequently have overlooked historical references to disease and epidemics. Indeed, it is instructive to note that many of the documents employed in this study have been previously examined, and in some instances, quoted at length by previous researchers, yet rarely has the evidence for disease been acknowledged or explored.

The magnitude of this neglect is well illustrated with reference to Andres Perez de Ribas' (1944) 3 volume history of the Jesuit experience in northern New Spain, completed in 1644. Significantly, Ribas' *Historia* contains countless references to disease (e.g. 1944:I, 169, 172, 225; II, 47, 118; III, 49, 148, 269, 346) that have been ignored or overlooked by historians and anthropologists. Dunne (1940, 1944, 1948), for example, has written several excellent volumes on the history of the Jesuit missions, each of which draws heavily on Ribas' *Historia*. Surprisingly, of the three volumes by Dunne, only one (1944: 109-117) has a chapter devoted to a discussion of Old World disease — a chapter that deals largely with only one epidemic. There are many other epidemics that were discussed by Perez de Ribas and other Jesuit sources which Dunne ignores or mentions only in passing. Other researchers, including Bolton (e.g. 1917, 1936) and Spicer (e.g. 1962, 1980) — perhaps the two most influential Southwestern scholars — also have overlooked disease episodes reported by Perez de Ribas and his contemporaries. Not only has this evidence been overlooked, but some scholars have implied (e.g. Spicer 1962: 58) or explicitly stated (e.g. Hu-DeHart 1981: 51; Pennington 1963: 24) that Old World diseases **did not**

have a significant impact on native peoples in northwest Mexico during the early historic period. Similarly, scholars continue to assert that introduced diseases had little impact on native peoples in the American Southwest (e.g. Basso 1979: 14-15), despite historical evidence to the contrary (e.g. Hackett 1937: 108; Kessell 1979: 170; Vetancurt 1961: 276). In general then, it cannot be said that the disease question has been neglected by Southwesternists because of a lack of historical data; rather, this neglect appears in large part to have been a matter of choice.

The Civilization-Savagery Myth and the Neglect of the Disease Evidence

The failure to acknowledge the evidence for disease or to explore the disease question reflects, I believe, several biases of theoretical significance that have had a profound influence on our understanding of the protohistoric period in not only the Greater Southwest, but the Americas in general. The most significant of these biases is the idea that Amerindian populations were inherently small and "primitive" relative to their European counterparts. The history of this prejudice, what Jennings has called the "Civilization-Savagery Myth", can be traced at least as far back in time as the Middle Ages, when the dichotomy between Christian and heathen provided a rationalization for "holy wars" bent on conquest (Jennings 1976: 3-14). Subsequently the distinction between Christian and heathen helped to rally the Iberians in their struggle to conquer and expel the Moors from Europe. After the fall of Granada and the discovery of a new world inhabited by people who were not only heathen, but whose outward appearance approximated Medieval notions of savagery (e.g. Elliott 1970; Hodgen 1964; Rowe 1964), the myth was invoked to justify yet another conquest, one that would impart to the

Amerindian a knowledge of God as well as civilization.

Post-conquest events in the Americas did little to alter Europe's preconceptions about the Amerindian or Europe's belief in its own innate and absolute superiority. Indeed, by the turn of the seventeenth century, Europe's success at discovery and conquest had contributed to the belief that Renaissance Europe had surpassed the hallowed accomplishments of Classical antiquity (Rowe 1964: 6-7). Born of this conceit was the doctrine of progress, which when applied to the study of human diversity, provided the basis for the theory of social evolution (Hodgen 1964). The general outline of this theory can be seen in the sixteenth century works of such highly influential writers as Las Casas and Acosta (Elliott 1970: 28-52; Rowe 1964). Using biased and impressionistic accounts of non-western peoples, including the Amerindian, both scholars outlined a hierarchical classification of human diversity based on popular conceptions of savagery and civility. Acosta further postulated for the Americas, but with implications for mankind in general, that his classificatory scheme had evolutionary significance (Rowe 1964: 8-9). Not surprisingly, through divine endowment, European civilization was thought to have attained the highest form of civility, while the Amerindian was generally relegated to one or more backward stages of savagery. Although during the Enlightenment Europe's progress was increasingly seen as dependent upon the laws of nature, rather than God, this secularism did little to alter Europe's position at the apex of the evolutionary hierarchy. Significantly, neither Morgan, Tylor, nor other nineteenth century evolutionists saw fit to question the Europocentrism of their predecessors. Instead, they bequeathed to anthropology and related disciplines a theoretical framework that continued to belittle the

accomplishments of the Amerindian and other non-western peoples, generally assigning them to the lower end of the evolutionary scale (Hodgen 1964: 483).

As Pearce (1965) and others have noted (e.g. Jennings 1976; Hallowell 1957; Nash 1972), the civilization-savagery myth pervades American literature and historiography, including the works of many modern students of the "frontier thesis" school. In keeping with Turner's (1893: 200) definition of the frontier as "a meeting point between savagery and civilization", frontier historians and anthropologists frequently have characterized America as a land that was once sparsely populated by technologically, socially, and mentally backward peoples. This reification of the concept of savagery ignores evidence of not only the complexity of Amerindian cultures, but the fact that the Amerindian was largely responsible for the survival of many European frontier endeavors (e.g. Axtell 1972; Jennings 1976; Hallowell 1957). Evidence of European-introduced disease and the fact that diseases such as smallpox transformed many densely populated areas into "wilderness" also has been ignored or overlooked by advocates of the civilization-savagery myth (Jennings 1976: 15). By ignoring such evidence it has been possible to cast the European as the great civilizer. Indeed, through advanced technology and superior intellect, the European is said to have conquered the "wilderness", and in so doing, rightly displaced, destroyed, or through his benevolence, enlisted the Indian in the cause of progress.

The pernicious effects of the civilization-savagery myth are evident in past as well as current interpretations of aboriginal culture and the dynamics of culture change and contact in many areas of the Americas, including the Greater Southwest. For many years now, researchers have concluded that native interest in and acceptance of programs for reduction and

missionization was prompted by a recognition of the benefits that accrued to mission ways of life. Although this idea or theme is apparent in the works of a number of eighteenth century mission historians (e.g. Alegre 1956-60; Nentvig 1980; Treutlein 1949), its most influential advocate was Herbert Eugene Bolton.

A student of the famous frontier historian, Fredrick Jackson Turner, Bolton wrote numerous works on the mission frontier as well as other subjects that have guided historians and anthropologists for over a half century in their interpretation of the historic period in northern New Spain (Bannon 1964: 3-19). Perhaps of equal, if not greater importance, have been the numerous students trained by Bolton, a partial listing of whom reads somewhat like a "Who's Who" among Spanish borderland historians². Significantly, in many of Bolton's works as well as those of his students, the missionaries are credited with transforming the barbarous or savage peoples of northern New Spain into civilized Christians. This theme was clearly spelled out by Bolton in one of his earliest works on the mission frontier, wherein he wrote that the missionaries "helped to not only extend, hold, and promote the frontier, but more significantly still, they helped to civilize it" (Bolton 1917: 52). Indeed, Bolton likened the mission to a "great industrial school", where besides learning good manners, agriculture, and self-government, "the women were taught to cook, sew, spin, and weave; the men to fell the forest, build, run the forge, tan leather, make ditches, tend cattle, and shear sheep" (Bolton 1917: 57). According to Bolton, once the missionaries taught the "erstwhile barbarians" the rudiments of civilization, they turned the wilderness of New Spain into a veritable bastion of progress, with imposing structures, fertile farms, and great stock ranches (Bolton 1917:

58).

The conclusions reached by Bolton in this early work were amplified in many of his later publications (e.g. 1919, 1932, 1935, 1936), and generally have been accepted by modern anthropologists and historians. Today, as in the past, many researchers continue to characterize aboriginal culture in the Greater Southwest in terms of small, economically simple communities that lacked sophisticated socio-political systems (e.g. Spicer 1962: 8-15). At the same time, the missionaries, particularly the Jesuits, have been cast in a role analogous to modern day extension agents. Indeed, through the introduction of new crops, tools, cattle, and other innovations, the Jesuits are said to have made possible for the first time in many areas, native settlement in towns, permanent houses, intensive agriculture, craft production, and other advances in native economic and socio-political organization (e.g. Bannon 1955; Bolton 1917; Dunne 1940; Fontana 1976; Hu-DeHart 1981; Spicer 1962: 285-298). Many researchers have further suggested that recognition of Spanish techno-economic superiority played a dynamic role in native acceptance of missionization (e.g. Spicer 1962: 58, 1980: 19).

The traditional view of aboriginal culture and the dynamics of acculturative processes in the Greater Southwest has never been critically examined, particularly in light of the evidence of Old World disease and its impact on native societies. In the remainder of this study an attempt will be made to rectify this situation. In doing so, data will be discussed that indicate that, at the time of Cortes' conquest of Tenochtitlan, and for at least several decades thereafter, many areas of the Greater Southwest supported dense populations with sophisticated economic and socio-political

systems. Data from the archaeological record and from the early accounts of Spanish explorers indicate this characterization pertained to many areas until the second half of the sixteenth century. At this time, the first significant phase of Spanish colonization of northern New Spain began, as numerous mines and supporting settlements were founded in Durango and southern Chihuahua. Significantly, the regular flow of goods and people associated with the Spanish mining frontier provided numerous opportunities for the northward spread of diseases that had become endemic, and which often reached epidemic proportions in southern Mexico. These opportunities multiplied following the founding of Jesuit missions in Nueva Vizcaya during the 1590's and the colonization of New Mexico in 1598. Indeed, evidence from northwest Mexico indicate that by the turn of the seventeenth century, smallpox and other diseases were spreading far in advance of the mission frontier. They continued to do so throughout the seventeenth century, decimating native populations and undermining native economic, socio-political, and religious systems. It was within this context that many native groups petitioned for baptism and missionization.

Although anthropologists and historians have traditionally cast the Jesuits as agents of technological and organizational innovations that are said to have contributed to mission success and revolutionized aboriginal culture, archaeological and historical data will be discussed that indicate otherwise. What made the missions a success was not the introduction of wheat, chickens, cattle, plows, or Jesuit knowledge of irrigation agriculture, but the fact that the priests pursued a policy of reconstituting native productive and organizational strategies that faltered or collapsed following exposure to introduced-diseases. In this regard, it will be seen that the Jesuits acted in

a managerial capacity, supervising productive activities and the redistribution of surpluses and trade goods, much as native caciques had done, prior to the introduction of smallpox and other maladies that undermined native adaptive strategies. Similarly, through the practice and advocacy of Catholicism, the Jesuits filled a void left by the death or failure of native religious to chart a course through uncertain and inexplicable times.

From the point of view of the indigenous population of northern New Spain, acceptance of missionization was, therefore, an opportunistic endeavor. The presumption that this opportunism was a function of native recognition of the inherent superiority of western civilization is not supported by empirical data — data that have been ignored by perhaps unwitting proponents of the civilization-savagery myth.

NOTES TO CHAPTER I

1. The term "Greater Southwest" is one of several culture area concepts that have been employed by American anthropologists to refer to native peoples in northwest Mexico and the American Southwest (see Woodbury 1979).
2. Some of Bolton's more prolific students include John F. Bannon, Peter M. Dunne, George P. Hammond, and Theodore Treutlein.

CHAPTER II

A TIME BEFORE COLUMBUS

A major finding of this study is that native communities throughout the Greater Southwest were affected by Old World diseases prior to sustained contact with the Jesuits and other Spaniards. Since many early disease episodes went unobserved and unrecorded by Europeans, indirect evidence often must be used to assess the demographic and cultural consequences of Spanish-introduced disease. Specifically, we must first establish the size of native populations, how native societies were structured and functioned, and how indigenous lifestyles were changing at the time of Columbus' voyage of discovery. Once these requirements have been satisfied and a baseline has been established, it is possible to deduce from Jesuit and other sources the changes that were wrought by smallpox and other maladies.

The purpose of this chapter, therefore, is to critically review what is known from the archaeological record regarding life in the the Greater Southwest prior to the advent of the European. As it is important to have some sense of the trajectory of societal evolution, the discussion first focuses on developments from A.D. 1-1400. Data are discussed from southern Arizona and northwestern Sonora, from Zacatecas, Durango, and Sinaloa, and finally, from Chihuahua, southern New Mexico, and central and eastern Sonora. Following a review of post-archaic developments in each of these

regions, data from the protohistoric period are examined. For reasons that are poorly understood, archaeologists in many areas of the Greater Southwest have been largely unsuccessful in locating or recognizing protohistoric remains. The resulting "gap" in the archaeological record, from around A.D. 1450-1650, traditionally has been thought to reflect a widespread cultural collapse that left much of southern Arizona, southern New Mexico, and parts of northwest Mexico wholly or largely depopulated. Precisely when this collapse occurred, and why, is not well understood (e.g. Gummerman and Haury 1979: 88; Haury 1950: 18; LeBlanc 1980; Martin and Plog 1972: 318-333; Wilcox and Masse 1981). Over the years, many researchers have inferred that the collapse occurred around the turn of the fifteenth century, and was due to deleterious climatic shifts and warfare (Gummerman and Haury 1979; Hayden 1970; Gerald 1975; Kelley 1952a; Martin and Plog 1973; Weaver 1972). These conclusions, particularly the dating of the collapse, have been strongly influenced by early Jesuit and Franciscan observations regarding native life — observations that seem to support the idea that significant reductions in native population and cultural complexity occurred before European contact. In this regard, the missionaries reported that many areas of the Greater Southwest were sparsely populated by native peoples that lived in small, dispersed *rancherías*, and that lacked permanent houses, intensive agriculture, regular surpluses, craft production, extensive trade, and complex socio-political organization (c.f. Spicer 1962).

Although the voluminous writings of the Jesuits and Franciscans contain valuable ethnographic data, the priests' observations do not necessarily pertain to "aboriginal culture", but frequently pertain to native societies that underwent significant disease-induced reductions in population

and cultural complexity. In light of the evidence of disease it is reasonable, therefore, to consider alternative interpretations of the collapse and the protohistoric period in general. Specifically, data will be discussed in the concluding section of this chapter that suggest that, while numerous communities may have been abandoned between A.D. 1350-1500 as a result of climatic shifts and/or warfare, still many other villages and towns persisted until the early historic period, when they were decimated by Old World diseases. This interpretation of the archaeological record is supported by the first European descriptions of the Greater Southwest, compiled by Spanish explorers. The exploration chronicles will be examined in chapter 3, following a review here of the archaeological record.

Post-Archaic Developments in the Greater Southwest, A.D. 1-1400

The Hohokam and Trincheras Cultures

It is apparent that the further back in time we go the more difficult it is to trace the origins and development of many societies that were eventually subjected to the devastating effects of Old World diseases. To date, one of the earliest and long-lived cultures documented in the archaeological record is the Hohokam of southern Arizona (Figure 2). Around the time of Christ¹, when much of the Greater Southwest was inhabited by hunter-gatherers, the Hohokam appeared rather suddenly in the Gila-Salt basin as fully sedentary agriculturalists. Indeed, evidence from Snaketown indicates that the early Hohokam built and maintained a sizeable canal network that apparently enabled these desert farmers to enjoy regular crop surpluses. Living in small pit-house villages, the earliest Hohokam also produced clay figurines, sculptured stone bowls, elaborate turquoise mosaics,

shell jewelry, and a technically advanced plain and redware pottery (Gummerman and Haury 1979; Haury 1976).

The host of traits associated with the earliest or Vahki Phase Hohokam (300 B.C.- A.D. 1) are without any known local antecedents. Canal irrigation, figurines, shell jewelry and mosaics all were present in Mesoamerica, however, centuries before they appeared in Arizona. The earlier occurrence of these traits in the south has prompted Haury and other Southwesternists to suggest that the Hohokam were migrants from some as yet unidentified area in southern or western Mexico (e.g. Gladwin 1957; Haury 1976; Kelley 1966). Although this inference appears logical, many archaeologists have been reluctant to accept such a migration, and favor instead the idea that the Hohokam were an *in situ* development (e.g. DiPeso 1979; Plog 1980). Whatever their origins may have been, the Hohokam proliferated during the centuries preceding and following the birth of Christ. Interestingly, toward the end of the Pioneer Period (300 B.C.-A.D. 550), new or old ties apparently were established with Mesoamerica that seem to have had a profound influence on Hohokam culture.

More specifically, during the Colonial Period (A.D. 550-900) a number of distinctive traits appeared for the first time among the Hohokam, including ballcourts, platform mounds, engraved palletes, mosaic plaques or mirrors (some with pseudo-cloisonne decoration), and various elements of Mesoamerican-like iconography that embellish Hohokam ceramics (DiPeso 1979; Gummerman and Haury 1979; Haury 1976; Kelley 1966). The appearance of these traits coincide with an increase in the number and size of Hohokam settlements in the Gila-Salt basin, and are also correlated with the construction of new and more extensive canal networks. There is also

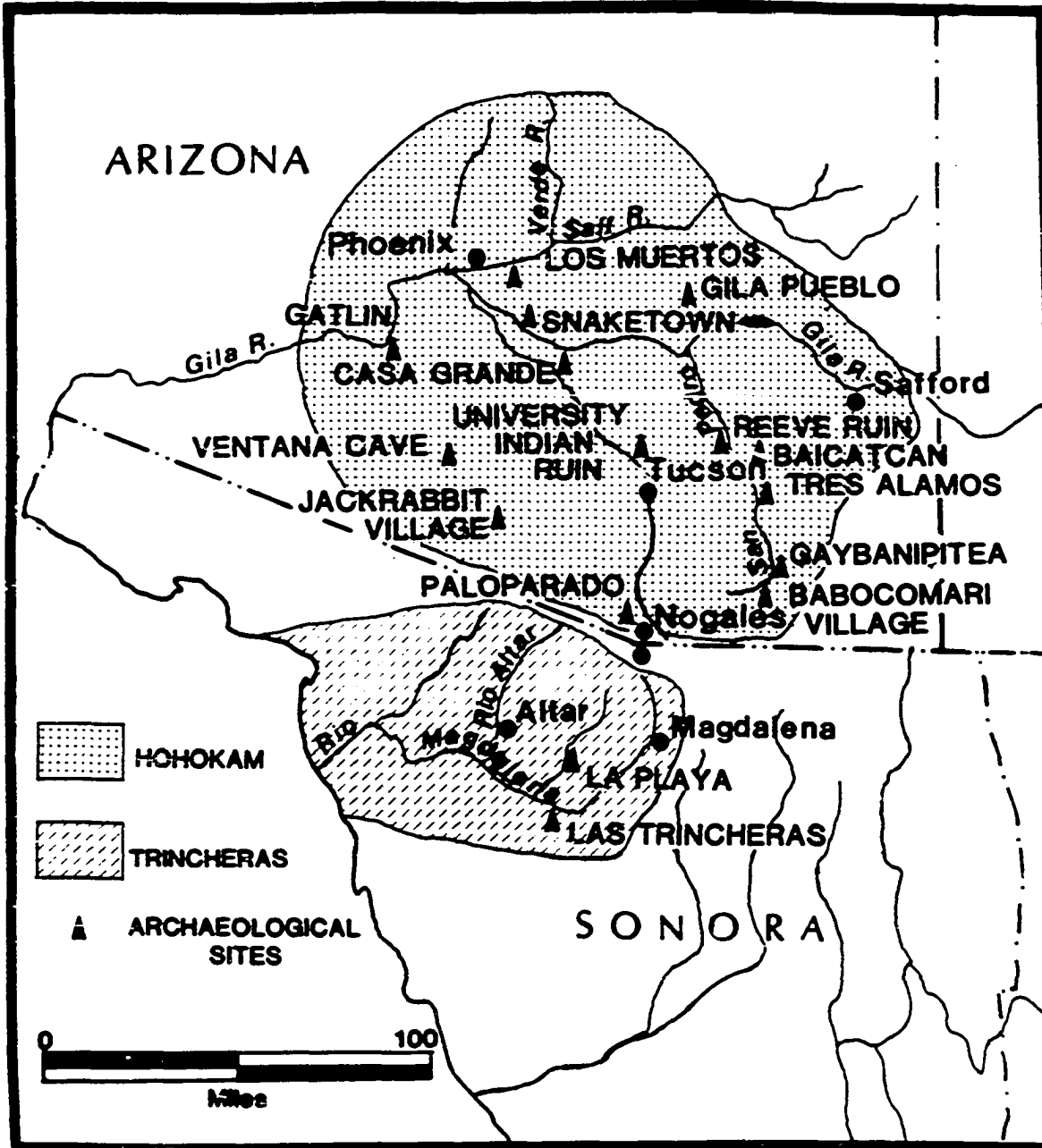


Fig. 2. APPROXIMATE BOUNDARIES OF ARCHAEOLOGICAL CULTURES OF SOUTHERN ARIZONA AND NORTHEASTERN SONORA

evidence at this time of considerable human investment in the production of a wide variety of luxury and ceremonial goods, including elaborate palletes, mosaic plaques, stone effigies, and carved and cut shell bracelets and pendants (Gummerman and Haury 1979; Haury 1976).

The rapid growth and development of Hohokam culture during the Colonial Period was not restricted to the Gila-Salt basin, but rather was a regional phenomenon that affected much of southern Arizona and adjoining areas. After A.D. 500, numerous pit-house villages with distinctive red on buff pottery, ballcourts, cremations, and other Hohokam traits are found in the Santa Cruz, San Pedro, and upper Gila River Valleys to the east, along the Agua Fria and Verde Valleys to the north, along the lower Gila to the west, and as far south as the international border (DiPeso 1956; Doyel and Plog 1980; Gummerman and Haury 1979; Kelley et al. 1978; McGuire and Schiffer 1982). Archaeological surveys and limited excavations at the La Playa Site in northwestern Sonora, in what has been termed the Trincheras Culture area (Figure 2), suggest that numerous Hohokam related villages also flourished here during the Colonial Period (Haury 1950; Johnson 1963, 1966). Like the Hohokam, the Trincheras Culture produced distinctive 3/4 grooved axes, shell jewelry, and a purple-on-red pottery that has numerous stylistic parallels with Hohokam wares (Johnson 1963). The location and size of many Trincheras sites in the Altar and Magdalena River Valleys also suggests a successful reliance on irrigation agriculture, knowledge of which may have been acquired from the Hohokam (Braniff 1978).

The expansion of Hohokam culture during the Colonial Period has been generally interpreted as reflecting a migration of Hohokam peoples out of the Gila-Salt Valleys (e.g. Haury 1976; Masse 1980; Wasley 1965).

Alternatively, it has been suggested that many peripheral settlements were inhabited by non-Hohokam peoples who assimilated various aspects of Hohokam culture (e.g. DiPeso 1956, 1979a; Hayden 1970; Fulton and Tuthill 1940; Wilcox and Shenk 1977). This acculturative process may have been initiated by Hohokam merchants who encouraged incipient agriculturalists in peripheral areas to intensify production and extraction of local resources that were, in turn, exchanged for many of the elaborate ceremonial and luxury goods produced at regional centers such as Snaketown (e.g. Kelley 1980; Wilcox and Shenk 1977). Evidence of this trade is reflected in the disproportionate amount of non-locally produced pottery, worked stone, and shell found at many peripheral settlements (e.g. DiPeso 1956; Tuthill 1947). Presumably, many of these imported items were exchanged for labor, agricultural products, wild resources, or raw materials such as turquoise, obsidian, or siltstone that were scarce or absent in the Gila-Salt basin (Doyel 1980: 29; Schroeder 1980: 177-178). Extensive trade with the Trincheras Culture, which was apparently a major supplier of shell consumed by Hohokam artisans (Brand 1938; Tower 1945), may also help to explain similar developments among both cultures during the Colonial and later Sedentary Period.

During this latter time frame, from around A.D. 900-1150, the number and size of Hohokam and Trincheras settlements continued to increase. In Arizona, this expansion involved the founding of Hohokam settlements in areas where canal irrigation was difficult or impossible, and where it was necessary to employ floodwater and other dry-farming techniques (e.g. Doyel 1977; Grebinger 1976; Wasley and Johnson 1965). Numerous distinctive traits and trade items have been found at many of these sites as well as at older

established villages, suggesting a well integrated regional economic and socio-political system, dominated by centers such as Snaketown (Doyel 1980). According to Haury (1976: 356), by A.D. 1100 the population of Snaketown probably numbered around 2,000, including farmers, artisans, and perhaps an elite class that enjoyed differential access to and control over goods and services. This latter inference is supported by mortuary data from Snaketown as well as from the Gatlin Site (Doyel 1980). Interestingly, accompanying "high status" cremations at both sites are copper bells (Doyel 1980: 30), which together with macaws, appeared for the first time during the Sedentary Period among the Hohokam (Haury 1976; Wasley 1960; Wasley and Johnson 1965). Large platform mounds that apparently served strictly religious or ceremonial purposes also were constructed at Snaketown and the Gatlin Site during this period. Curiously, toward the close of the Sedentary period numerous other items of purported Mesoamerican origin or inspiration seem to disappear among the Hohokam (Doyel 1980). At the same time other dramatic changes took place that mark the transition to the Classic Period (A.D. 1150-1450).

During the initial or Soho Phase (A.D. 1150-1300) of the Classic Period, many Hohokam settlements in Arizona are thought to have been abandoned or depopulated, including Snaketown and the Gatlin Site. Concurrently, new settlements were established or older villages remodeled that seem to reflect a break with tradition. Specifically, the Soho Phase is characterized by compact villages with adobe structures, some of which were entirely above ground and surrounded by a compound wall — a striking contrast to the pit-house villages of the earlier Hohokam. Although cremation continued to be practiced during the Soho Phase, there seems to have been a

decided shift at this time to extended inhumation, in some cases to the total exclusion of the former burial mode. After A.D. 1100, redware and red on brown pottery superseded red on buff as the principal decorated pottery types, and many elaborate trade goods that were produced during the Sedentary Period seem to have disappeared (Doyel 1980; Gummerman and Haury 1979).

Although most researchers agree that the Soho Phase witnessed far-reaching changes, scholars disagree about the dynamics of culture change during this period. Many researchers believe that the Sedentary-Classic transition was a time when the Hohokam were peaceably joined or conquered by groups from northern Arizona (Haury 1945; Schroeder 1960), Chihuahua (DiPeso 1976, 1979a), or Mesoamerica (Ferdon 1955). Migrations from each of these areas have been postulated to account for the appearance of adobe architecture as well as new pottery styles and burial practices. Alternatively, other researchers argue that many Soho Phase traits were local developments in an "experimental stage" (Doyel 1980; Hayden 1970). Many who favor this local development model believe the twelfth century was a time of significant natural or man-made disturbances of the physical environment that led to a restructuring of Hohokam society (e.g. Weaver 1976). Although this may very well have been the case, sufficient or appropriate data are lacking that would enable us to confirm or reject competing hypotheses regarding developments during the Soho Phase. Whatever forces were operative between A.D. 1150-1300, it is apparent that during the next century southern Arizona and northwestern Sonora witnessed a climax in cultural development.

Within the Gila-Salt basin, this climax was reached during what has

been termed the Civano Phase (A.D. 1300-1450), and was characterized by the construction of numerous large towns with adobe architecture. Although only a few of these towns have survived the ravages of the past century, many appear to have consisted of multiple compound units, each containing one or more adobe room blocks arranged around a central plaza. Excavations by Cushing during the late nineteenth century indicate that some towns in the Phoenix area such as Los Muertos may have had upwards of 500 rooms (Haury 1945), and perhaps as many as 1000 (Martin and Plog 1973: 314). Also present in each town were one or more compounds with large, free standing platforms that apparently functioned as religious or ceremonial structures. Many towns also appear to have had one or more large multi-storied adobe buildings, the best known example of which, Casa Grande, had walls that were over two meters thick and four stories high (Gummerman and Haury 1979; Wilcox 1977). Although archaeologists disagree about the function of these "Great Houses", most seem to think they were elite residences that were supported by lesser town dwellers as well as by individuals who resided in hundreds of smaller compound villages strung out along the lower Gila and Salt Rivers (e.g. Pailes 1963; Wilcox 1977). During the Civano Phase, many of these smaller settlements as well as the larger towns in the Gila-Salt basin were serviced by a vast canal network that covered a linear distance of several hundred miles (Midvale 1965, 1968). It is estimated that in the lower Salt River Valley alone, the canals were capable of irrigating over 140,000 acres of cropland (Schroeder 1960). The size of the canals, the number and density of sites, and other evidence have led Haury (1976: 356) to suggest that at the height of the Classic Period the population of the the Gila-Salt basin may have numbered between

50,000-60,000.

Developments in the Hohokam heartland during the Civano Phase have interesting parallels in other areas of southern Arizona. In the wake of continued population growth, hundreds of compound villages with adobe or stone masonry structures were established by A.D. 1350 in the Santa Cruz, San Pedro, and upper Gila and Salt River Valleys. Although these settlements were small in comparison with towns such as Los Muertos, villages with an excess of 100 rooms were common, and occasionally had multi-storied buildings and platform mounds. Relatively large numbers of trade items have been found at many Classic Period sites in southeastern Arizona, including several varieties of polychrome pottery that were produced locally for the first time (e.g. Gila, Santa Cruz, Babocomari) (Franklin and Masse 1976; Grebinger 1976; Gerald 1975; Dipeso 1958, 1979a; Hayden 1957).

The period from A.D. 1250-1400 also was a time when population densities reached a climax in the **Papageria** and the **Trincheras** Culture area (Goodyear 1975; Haury 1950: 8; Sauer and Brand 1931). During the Sells Phase (A.D. 1250-1450) in the **Papageria**, numerous compact villages were founded whose inhabitants employed floodwater, reservoirs, or simple irrigation canals to maximize farming success (Masse 1980; Raab 1974; Withers 1973). At sites such as Jackrabbit Ruin, a compound enclosure and a platform mound also were constructed for the first time during the Sells Phase (Scantling 1940). The Sells Phase also was a time when the inhabitants of the **Papageria** took to building massive stone walls and revetments on precipitous hills or mesas near Jackrabbit Ruin and many other villages² (Haury 1950; Sauer and Brand 1931; Stacy 1974). The largest concentration of these fortified hilltops or **trincheras**³ apparently were constructed around the

fourteenth century in northwestern Sonora, whence the name for the the Trincheras Culture originated (Sauer and Brand 1931). Like their counterparts in southern Arizona, the Trincheras folk by A.D. 1350 were living in large villages and towns with adobe architecture (Bowen 1976; Sauer and Brand 1931). At this time, and for at least a century thereafter, the Trincheras folk continued to supply groups in the Greater Southwest with raw and finished shell (DiPeso 1956). Perhaps it was a need to protect or control access to shell and the shell trade that prompted the building of the many *trincheras* that have been found in northwestern Sonora (DiPeso 1979: 158). However, as noted, similar defensive retreats have been found in the *Papaguera*, and also in other areas of southern Arizona and in central Sonora (Eraniff 1978; Reff 1981; Sauer and Brand 1931; Stacy 1974). The frequency and widespread distribution of these *trincheras* are suggestive of large-scale warfare that probably involved competition over a variety of resources, besides shell. Unfortunately, we know relatively little about the nature and extent of conflict during the centuries prior to the Conquest. This will become more apparent when we examine archaeological data from the protohistoric period.

For the moment, we may note that, by A.D. 1350, southern Arizona and northwestern Sonora were well populated by fully sedentary agriculturalists, many of whom lived in large villages or towns, practiced intensive agriculture, and were involved in extensive trade. Although it is more difficult to demonstrate, native socio-political organization also obtained a sophisticated level of development by A.D. 1350. In this regard, many archaeologists have inferred the presence of ranked societies or chiefdoms in the Gila-Salt basin as well as in surrounding areas (e.g.

Grebinger 1971; Wilcox 1977).

The Chalchihuites and Loma San Gabriel Cultures

In reviewing developments in southern Arizona and northwestern Sonora, mention has been made of Mesoamerican traits and trade items that occur throughout much of the Hohokam sequence. During the past few decades, similar discoveries have been made in Zacatecas, Durango, and southern Chihuahua⁴. Work by Kelley and his students suggest that as early as perhaps A.D. 350, western Zacatecas was colonized by groups from Teotihuacan or a competing polity in central Mexico (Kelley 1971; Weigand 1981; Weigand et al. 1977). Evidence of this intrusion has been equated with the Chalchihuites Culture (Figure 3). During what has been termed the Alta Vista Phase (A.D. 350-700), the Chalchihuites folk opened over 700 mines in the San Antonio and Colorado drainages (Weigand 1981). Numerous large villages, hilltop settlements, and a number of large ceremonial centers replete with pyramids, halls of columns, altars, and a variety of other Mesoamerican traits also appeared in Zacatecas during this period (Kelley 1971). Apparently after several centuries of mining malachite, cinabar, hematite, and a soft white chert, chalchihuitl, native elites also began sponsoring long distance expeditions to the American Southwest, principally to acquire turquoise. Over 17,000 pieces of turquoise have been recovered from the Site of Alta Vista, most of which apparently was brought in unprocessed form from near Tyrone, Arizona, and Cerrillos, New Mexico (Weigand 1981: 142, 164-166). Perhaps because of an increased demand for turquoise and a decline in demand for minerals from western Zacatecas, the Chalchihuites folk abandoned western Zacatecas around A.D. 1000. At the same time, some of the Chalchihuites population apparently migrated northward into Durango,

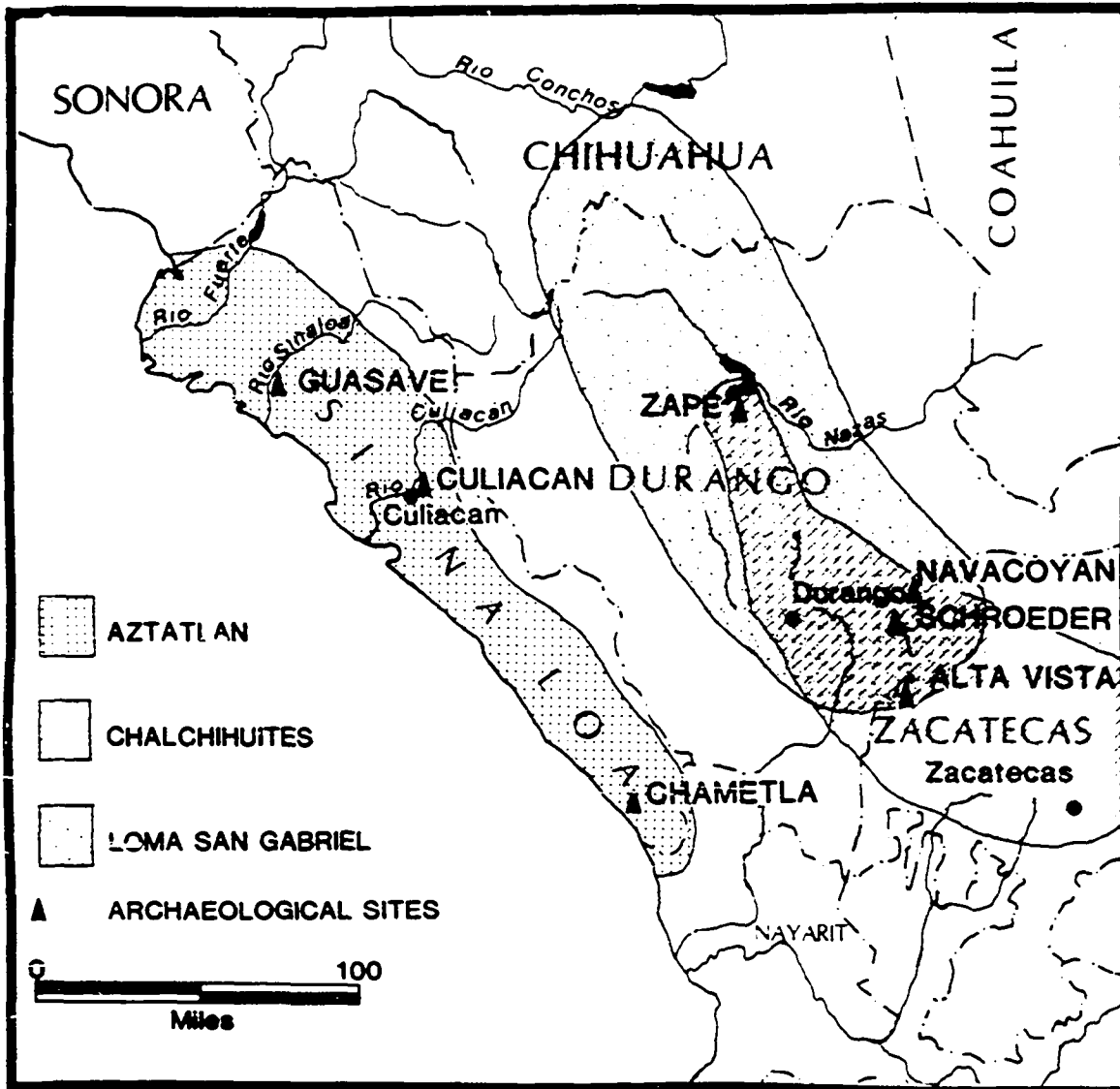


Fig. 3. APPROXIMATE BOUNDARIES OF ARCHAEOLOGICAL CULTURES OF SINALOA AND DURANGO (after Foster 1978; Meighan 1971)

where new mercantile ventures apparently were established (Kelley 1971, 1980; Weigand 1981).

At the time of this apparent migration, much of central Durango was already occupied by relatively simple horticulturalists termed the Loma San Gabriel (Figure 3) (Foster 1978; Kelley 1971). Archaeological remains of this culture have been found along the eastern slopes of the Sierra Madre Occidental, from western Zacatecas as far north as the Rio Conchos in southern Chihuahua (Brand 1939; Foster 1978). Present evidence suggests that the Loma San Gabriel were hunter-gatherers who began cultivating maize and other domesticates sometime around the birth of Christ. These part-time agriculturalists subsequently settled in small villages or hamlets consisting of rectangular platforms upon which perishable structures were built. In time, some of these house clusters were oriented around a central plaza and encircled by a small retaining wall. Like other native peoples in the Greater southwest, the Loma San Gabriel produced a plain brownware pottery that was occasionally decorated with textured designs or red slip and broad bands of red paint (Foster 1978; Kelley 1971; Kelley and Kelley 1971).

While the Loma San Gabriel were pursuing horticulture coupled with hunting and gathering, they were joined by Chalchihuites settlers from the south. By A.D. 1000, the newcomers had established a number of large ceremonial and trading centers along the eastern slopes of the Sierra Madre Occidental, as far north as the site of Zape. Although only a few of these hilltop towns have been examined in any detail, work at Navacoyan and the Schroeder Site indicate that each town consisted of numerous structures built on platforms that were arranged in groups around a central plaza (Kelley 1971). The Schroeder Site, which actually covers an extensive area of hills

and adjacent lowlands, was integrated by a complex road system. The site also has a large pyramid, ballcourt, circular platform with stairway, and numerous ruins of masonry architecture. Apparently sites such as Navacoyan and Schroeder were important ceremonial centers where resident native elites supervised a number of artisans engaged in the production of a wide variety of elaborate luxury and ceremonial goods. Some of the many items produced by native artisans include Mesoamerican-like polished red, buff, and black pottery, copper bells, pyrite mirrors, incense burners, carved stone bowls, turquoise mosaics, obsidian knives, and a variety of other trade items fashioned from gold, shell, and clay (Kelley 1971: 790-791).

Although a great deal remains to be learned about the Chalchihuites folk, few if any sites have been found in Durango that can be termed true farming settlements (Foster 1978; Kelley 1971). The lack of such settlements has been interpreted by Kelley (1971: 800-801) as an indication that the Loma San Gabriel constituted a peasant-farming population that was exploited by its Chalchihuites neighbors. Whatever relationship obtained between these groups, both appear to have co-existed between A.D. 800-1350. During this time the Loma San Gabriel apparently assimilated various aspects of Chalchihuites Culture. This much is suggested by a number of Loma sites with large truncated mounds, plazas, stone altars, and small numbers of ceramic and other artifacts that were copied after the more refined and elaborate artifacts produced by Chalchihuites artisans (Foster 1978; Kelley 1971).

The Aztatlan Culture

The postulated colonization of Zacatecas and later Durango and southern Chihuahua by Mesoamerican peoples was not an isolated

phenomenon. Although relatively little archaeological research has been conducted in Sinaloa, what work has been done suggests that here also some form of Mesoamerican expansion into the area occurred by A.D. 200 (DiPeso 1979; Kelly 1938; Meighan 1971, 1974). This inference is based largely on stratigraphic tests by Isabel Kelly near Chametla, just north of the present day border between Nayarit and Sinaloa (Kelly 1938). The earliest archaeological materials found by Kelly include a number of items of clear Mesoamerican origin or inspiration, including engraved ceramics, spindle whorls, small figurines, and elaborate polychrome pottery. These artifact classes appear to merge and overlap with later materials associated with the Aztatlan horizon (Figure 3), dating from around A.D. 700-1400 (Kelley and Winters 1960; Meighan 1971; Sauer and Brand 1932). Apparently after A.D. 700 each of the major rivers in northern Nayarit and southern and central Sinaloa were lined with villages and occasional large urban centers, as reflected, in part, by a near continuous distribution of archaeological remains along the Rio Acaponeta, Baluarte, Presidio, and Culiacan (e.g. Sauer and Brand 1932: 16-17). Included among these remains, particularly to the south of the Rio Presidio, are artificial mounds that were apparently used for domestic and ceremonial purposes. From the size and description of these mounds, some are better understood as small pyramids (e.g. Sauer and Brand 1932: 21-24).

Survey work as well as excavations at Culiacan (Kelly 1945) and Guasave (Ekholm 1942) indicate that, by A.D. 1200, the Aztatlan folk produced a wide variety of basic commodities and luxury goods, including some of the most elaborate polychrome pottery in the New World (Meighan 1971: 761). Aztatlan artisans were also adept at working gold, silver, copper,

shell, alabaster, turquoise, obsidian, and other raw materials, including gourds that were decorated with paint cloisonne (Ekholm 1942; Kelly 1945; Meighan 1971; Sauer and Brand 1932). Interestingly, some of the artifacts that were fashioned from these materials are remarkably similar to craft goods associated with the Mixteca-Puebla complex of Oaxaca and Puebla (Ekholm 1942: 124-132; Kelley 1980: 57-66). These similarities include numerous Aztatlan ceramic design motives that appear in Mixtec and Aztec codices (Ekholm 1942: 127). Similar Mixteca-Puebla traits recently have been found at sites in Nayarit and Jalisco, and apparently are contemporaneous with the final phases of the Aztatlan horizon, ca. 900-1350 (Kelley 1980). The distribution of these sites, extending across west Mexico and on up through Nayarit and Sinaloa, has been interpreted by Kelley (1980: 57-66) as indicative of a major trade route that integrated northwest Mexico with postclassic civilizations in southern Mexico. Several researchers have suggested that this route may have been opened for the purpose of acquiring cotton, copper goods, turquoise, and other commodities that were exported to central Mexico (e.g. Kelley 1980; Pailes and Whitecotton 1979). It has been further suggested that, by A.D. 1350, Tarascan expansion had halted long-distance trade between southern Mexico and Sinaloa (Kelley 1980; Weigand 1981). Both archaeological and historical data nevertheless indicate that, as late as A.D. 1530, Sinaloa continued to support dense populations with complex economic and socio-political systems (e.g. Meighan 1971; Sauer and Brand 1932).

Casas Grandes and Related Cultures

It is apparent that between the time of Christ and A.D. 1350, many areas of the Greater Southwest witnessed significant increases in population

and cultural complexity. What transpired during this period in central and eastern Sonora and Chihuahua, is known only in small part. Unfortunately, as is true of northwest Mexico in general, relatively little archaeological research has been conducted in Sonora and Chihuahua. Although a great deal more research has been conducted in southern New Mexico, there are serious gaps in our understanding of post-archaic developments in this region as well (Beckett and Wiseman 1979; Stuart and Gauthier 1981).

Present evidence indicates that the first millennia A.D. in each of the above areas was a time of significant population increases, accompanied by a shift from a reliance on hunting and gathering to agriculture (DiPeso 1979). By A.D. 1000, many part-time agriculturalists in southern New Mexico, northern Chihuahua, and northern Sonora lived in small pit-house villages, and produced a plain Mogollon-like brownware pottery (DiPeso 1974: I; Martin and Plog 1973; Pailes 1980). Like their Loma San Gabriel counterparts to the south, they also produced a red-on-brown pottery with geometric designs as well as ceramics that were decorated with incising and punctation. The use of texturing as a decorative technique has been shown to extend down through the foothills of southern Sonora as well (Pailes 1972). Data from Cueva de Colmena and other sites suggest that this decorative technique first appeared in the foothills above the Mayo and Fuerte Rivers sometime around A.D. 700, and may reflect a westward expansion of Tarascan peoples (Pailes 1972). By A.D. 1000, these mountain dwellers were living in small hamlets and villages with crude stone masonry architecture. At the same time, in the lower foothills and along the coast, the probable ancestors of the modern Cahita are likewise thought to have resided in sedentary communities, presumably with perishable structures of cane matting that

were better suited to the sub-tropical climate of the desert coast. Survey work by Ekholm (1940), near the town of Huatabampo, indicates that the inhabitants of the lower Mayo River produced a fine redware that is reportedly similar to early redwares found among the Hohokam and Mogollon. Some of this pottery and other items of material culture also reflect contact with the Aztatlan culture to the south (Ekholm 1940). However, the material from the Huatabampo area as well as the lower foothills to the east suggest that developments in Sinaloa had little impact on southern Sonora (Ekholm 1942; Johnson 1966; Pailes 1972).

In general, the picture that emerges from the archaeological record of life at around A.D. 1000 in southern New Mexico, Chihuahua, and much of Sonora is one of small dispersed populations that were concerned primarily with meeting subsistence needs. Sometime around A.D. 900-1000, during what has been termed the Three Circle Phase, this pattern changed markedly in southwestern New Mexico. All evidence points to a dramatic increase in population at this time, accompanied by a shift to a greater dependence on agriculture (Stuart and Gauthier 1981: 193-197). These trends apparently continued during the subsequent Mimbres Phase (A.D. 1000-1150), when many former pit-house dwellers took to building cobble masonry pueblos with kivas. Found at many of these sites are a number of distinctive pottery types, particularly Bold-Face and Classic Mimbres Black-on-White. Both pottery types appear to have been exchanged over a wide area until around A.D. 1150, when, for reasons that are poorly understood, the Mimbres occupation of southwestern New Mexico appears to end abruptly (Leblanc 1976, 1977; Stuart and Gauthier 1981: 198-205). Interestingly, around the same time, a small group of Mesoamerican colonists are thought to have settled in

northern Chihuahua. These immigrants appear to have profoundly influenced the course of developments not only in Chihuahua, but in southern New Mexico, southeastern Arizona, western Texas, and Sonora.

More specifically, DiPeso's research in northern Chihuahua strongly suggests that around A.D. 1060, a small but well organized group of Mesoamerican merchants settled in the Casas Grandes Valley (DiPeso 1974: II). By whatever means, these foreigners enlisted the support of the indigenous population in constructing a frontier trading town that has come to be known as Casas Grandes or Paquime (Figure 4). Unlike the pit-house villages that were occupied by the local population, the town was a planned construction and had thick adobe walls, integrated apartments, an underground water and sewage system, plazas, ceremonial structures, and a staggered outer defense wall. Beyond the walls of the town, the merchant elite apparently also supervised the construction of a vast network of dams, terraces, and other water control devices that eventually harnessed run-off from an estimated 12,000 square kilometers of arid uplands in the sierras to the west of Casas Grandes. Once in place, this extensive hydraulic system provided run-off protection for 750-800 square kilometers of valley bottomland, an unknown portion of which was irrigated by a substantial canal network (DiPeso 1974: II, 337, 340).

With an abundance of food, the elite of Casas Grandes were able to train and support numerous artisans who produced a wide variety of luxury and ceremonial goods. Elaborate turquoise mosaics, beads, and pendants, copper bells, shell jewelry, and polychrome pottery are some of the more important trade items that were fashioned from imported and local raw materials. During the Buena Fe Phase (A.D. 1060-1205) these commodities

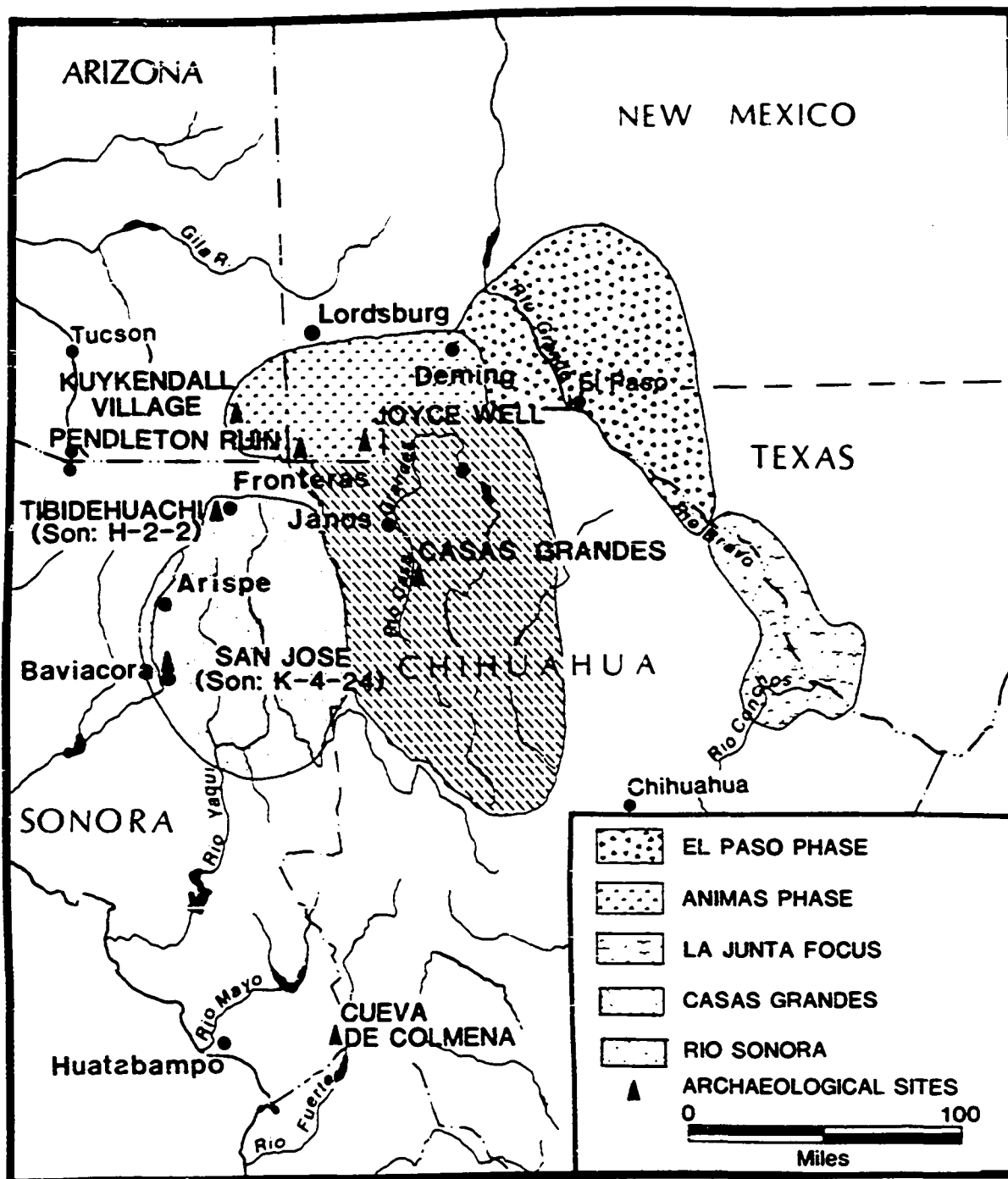


Fig. 4. APPROXIMATE BOUNDARIES OF ARCHAEOLOGICAL CULTURES OF SOUTHERN NEW MEXICO, WESTERN TEXAS, CHIHUAHUA, AND CENTRAL AND EASTERN SONORA (After DiPeso 1979; Pailes 1972)

were exchanged with native peoples in many areas of the Greater Southwest, and presumably, were exported to Mesoamerica as well⁵ (DiPeso 1974: II, 620-622). So successful were their commercial ventures that around A.D. 1205, the elites of Casas Grandes instituted an urban renewal program that culminated in a massive mercantile center covering an area of some 88 **hectares** (DiPeso 1974: II, 370). Again, the new city of Paquime was built according to a master plan, with areas zoned for elites, specialized workshops, warehouses, and a multi-storied complex that housed several thousand people in over 1500 rooms, some of which were equipped with running water, sewage drains, and heated sleeping platforms. Also present in the city was a market place, plazas, and a ceremonial precinct replete with temples, ballcourts, a truncated pyramid, effigy mounds, and numerous ramps, staircases, and colonnaded galleries (DiPeso 1974: II, 375-475).

As DiPeso (1974: II, 421) suggests, the total effect of the city must have been awesome, and was no doubt designed by Paquime's elite to encourage commerce as well as elicit support from the local population as well as the inhabitants of hundreds of villages that sprang up in northwestern Chihuahua during the Medio Period (A.D. 1060-1340). Archaeological surveys indicate that many of these satellite communities were linked by an extensive network of trails and signal towers that apparently facilitated the flow of goods and services to and from Paquime (DiPeso 1974: II, 314-315, 360-365). Recent archaeological survey and excavation indicate that there also were numerous towns and villages in southern New Mexico, western Texas, and Sonora that may have owed their existence to Casas Grandes.

The majority of these settlements in southwestern New Mexico, extending over into Arizona, are part of a poorly known complex termed the

Animas Phase⁶, dating from around A.D. 1175-1400 (Kidder et al. 1949) (Figure 4). Unlike the Mimbrenos who favored the mountains of southern New Mexico, the Animas Phase folk resided at lower elevations, primarily near valley bottoms or large arroyos that were suitable for floodwater or irrigation agriculture (LeBlanc 1980). Survey work in southern New Mexico suggests that many Animas Phase settlements fall into a hierarchical settlement pattern, similar to that which has been observed in northwestern Chihuahua (Findlow and DeAtley 1982; Leblanc 1980). The highest order settlements are estimated to have had between 100-500 rooms, and are architecturally quite similar to the Buena Fe Phase town of Casas Grandes. Each large Animas Phase site reportedly consists of multiple, contiguous adobe room blocks arranged around a central plaza. Found at many of these towns or settlements are significant amounts of decorated pottery and other exotic artifacts from Paquime, as well as several locally produced pottery types (e.g. Ramos Polychrome and Playas Red) that originated in northern Chihuahua⁷ (Leblanc 1980). Not surprisingly, these parallels have led many researchers to suggest that the Animas Phase may represent a migration from the Casas Grandes province (e.g. Findlow and DeAtley 1982; Leblanc 1980). This migration is thought to have been undertaken in part for the purpose of acquiring turquoise, obsidian, and other minerals that are known to have been mined in southwestern New Mexico and transported to Paquime, where they were transformed into finished goods (DiPeso 1974: II, 629; Findlow and DeAtley 1982: 267). It may also have been the case, as LeBlanc (1980) has suggested, that some Animas Phase communities included part of the former Mimbres population of southern New Mexico as well as immigrants from Arizona, the Rio Grande area, and southern Chihuahua. It is

conceivable that elites at Paquime supported migrations from these areas as part of their efforts to exploit mineral resources in southern New Mexico. Unfortunately, until more problem-oriented research is undertaken, few definite statements can be offered regarding the origins of the Animas Phase and its exact relationship with Casas Grandes.

Similarly, we know relatively little about Casas Grandes' relationship with the El Paso Phase (Lehmer 1948) and the La Junta focus (Kelley 1951) of south-central New Mexico and western Texas. Both archaeological complexes are roughly contemporaneous with the Animas Phase, and are similar in terms of settlement location, adaptive strategy, architecture, and the presence of relatively large amounts of trade items from northern Chihuahua (Schaafsma 1979). However, unlike the Animas Phase, which purportedly lacks local antecedents, the El Paso Phase and La Junta Focus exhibit a number of traits such as ceramics that are suggestive of an *in situ* development that was strongly influenced by Paquime. The process by which this influence spread is poorly understood (Beckett and Wiseman 1979; Schaafsma 1979), although logic dictates that it may have involved economic ties with Casas Grandes. Merchants from Paquime, for example, may have encouraged the inhabitants of the lower Rio Grande to implement new productive and organizational strategies — strategies that were geared to the production and acquisition of commodities and raw materials that were exchanged for luxury and ceremonial goods from Paquime. Evidence of this type of relationship is perhaps reflected in the relatively large amount of Chihuahuan polychrome pottery that has been found at sites along the lower Rio Grande, and the large quantity of tradeware from the latter area that have been found at Paquime. DiPeso (1974: II, 746, f.21) notes, for example,

that some 17,000 sherds of El Paso Polychrome were recovered at Casas Grandes, over 90% of which represent jars that were probably used to transport perishable items. According to DiPeso (1974: II, 335), the inhabitants of the lower Rio Grande were one of a number of peoples who supplied Paquime with turquoise, buffalo robes, and foodstuffs such as meat and pinon nuts. It is conceivable, therefore, that the El Paso Phase, La Junta Focus, and perhaps the Animas Phase as well, each represent local populations (rather than colonists from northern Chihuahua) whose growth was stimulated by extensive trade with Paquime — trade that may also have involved exposure to and perhaps acceptance of architectural and other traits that were developed in northern Chihuahua. This model is being offered here because it also seems to account for contemporary developments in central and eastern Sonora.

As mentioned previously, by A.D. 1000, the inland river valleys of Sonora were inhabited by sedentary agriculturalists that have come to be known as the "Rio Sonora Culture" (Amsden 1928; Pailes 1972, 1980). To date, much of what is known about the origins and development of this culture is the result of recent survey and excavations at San Jose and other sites in the Sonora Valley (Doolittle 1979; Pailes 1978, 1980, 1983; Reff 1981). Within the valley, the earliest known phase of the Rio Sonora Culture dates from around A.D. 1000-1150, and is characterized by small pit-house villages, the inhabitants of which practiced cremation and produced a plain Mogollon-like brownware pottery. Interestingly, the principal decorated pottery produced during this as well as later phases are local variants of pottery types produced during the Viejo and Medio Periods in northwestern Chihuahua (e.g. Convento Incised, Casas Grandes Incised, Playas Red Incised).

Archaeological survey in the Rio Moctezuma, Bavispe, Fronteras, and Sahuaripa drainages indicate these same pottery types, or local variants of them, were produced throughout central and eastern Sonora. Although the significance of this widespread distribution of pottery types remains to be established, ties of some sort must have existed between the Rio Sonora Culture and the inhabitants of northwestern Chihuahua, prior to as well as following the establishment of Casas Grandes. This inference is supported by numerous trade wares and other artifacts of copper and shell that were produced in Chihuahua during the Medio Period that have been found at sites in the Sonora Valley. For example, over 90% of the non-local pottery that has been recovered from excavations and survey in the Valley consists of decorated pottery from Chihuahua, and includes almost the entire range of Casas Grandes polychromes (Pailes 1980: 35). What is particularly interesting about this imported pottery and other trade items is the fact that their occurrence is correlated with a dramatic increase in population and cultural complexity. The timing as well as the character of these developments parallel changes that affected the Animas and El Paso Phases and the La Junta Focus.

Specifically, it has been estimated that, beginning around A.D. 1150, the population of the Sonora Valley grew at an annual rate of approximately .06% (Pailes 1983: 11). This growth in population is reflected in a rapid increase in both the size and number of permanent settlements that were occupied after A.D. 1150 (Doolittle 1979). By A.D. 1300, the majority of these settlements consisted of coursed adobe surface structures, and exhibit a hierarchical ordering in terms of site size, number of structures, presence or absence of public architecture, and frequency of exotic artifacts. At the

apex of the hierarchy are two settlements that were probably inhabited by lineage heads who enjoyed differential access to or control of production and exchange. Both the San Jose Site (Son: K-4-24) and Las Delicias (Son: K-4-16) are in discrete physiographic sections of the valley, and have in excess of 100 visible house remains as well as a large public structure or ballcourt. Excavations at both sites yielded enormous amounts of locally made pottery as well as a relatively large number of imported ceramics. Similar disproportionate distributions characterize other trade items such as shell and copper. As mentioned, the largest percentage of these trade goods were produced in northwestern Chihuahua, and presumably were acquired through trade from Paquime (Pailes 1978, 1980; Reff 1981).

The archaeological evidence from the Sonora Valley supports the idea that Casas Grandes stimulated the growth and development of distant populations who relied on Paquime for luxury and ceremonial goods. Significantly, what little archaeological research has been conducted in other parts of central and eastern Sonora indicates that, here too, Casas Grandes may have exerted a profound influence on local developments. In this regard, archaeologists as far back as Bandelier (1892) have long noted the presence of extensive ruins along the Rio Moctezuma, Sahuaripa, Bavispe, and Fronteras drainages (e.g. Amsden 1928; Lumholtz 1902; Sauer and Brand 1931). Many of these sites, like their counterparts in the Sonora Valley, represent large, nucleated settlements with adobe architecture. Archaeological surveys in northeastern Sonora also have yielded large numbers of sherds of Chihuahuan polychrome pottery. This is particularly true of sites along the Rio Bavispe and Rio Fronteras such as Buenavista (Son: H-2-2). Indeed, many years ago Sauer and Brand (1931) referred to sites in

this region as "peripheral Casas Grandes", because of the inordinate surface finds of Chihuahuan polychrome pottery. It is apparent that trade between the Rio Sonora Culture folk in eastern Sonora and Casas Grandes was extensive. Here, as in other areas peripheral to Casas Grandes, this trade may have been responsible for new productive and organizational strategies as well as increases in population and cultural complexity that seem to characterize the period from around A.D. 1150-1350. With respect to the Rio Sonora Culture, this development may very well have been nourished, in part, by Paquime's importation of cotton, a commodity that apparently was not grown or finished in great quantities at Casas Grandes (see DiPeso 1974: IV, 704-705, f. 133-144). Archaeological data from the Sonora Valley (Pailes 1978) as well as historical data (e.g. Nentvig 1980: 68; Pfefferkorn 1949: 52-53) indicate that the Rio Sonora Culture, known ethnographically as the Opata, specialized in growing, spinning, and weaving cotton. Long after Paquime collapsed, the Opata continued to supply cotton goods to other native peoples in the Greater Southwest (e.g. Salmeron 1966: 94-95).

The Protohistoric Period: A.D. 1400-1600

From the foregoing discussion it is apparent that by A.D. 1400, many areas of the Greater Southwest were densely populated. Indeed, wherever archaeologists have looked — be it in the desert **Papaguercia** of southern Arizona or along the sub-tropical coastal plain of southern Sinaloa — sizeable villages and towns have been found that flourished centuries before the Conquest. Through the use of a variety of agricultural techniques (c.f. Woosley 1980), ranging from simple floodwater farming to canal irrigation, many of these communities were able to exceed subsistence requirements, and were able to support craft activities and extensive trade. By the

fourteenth century, villages and towns throughout the Greater Southwest were engaged in local and long-distance exchange of salt, turquoise, worked shell, pottery, copper, obsidian, bison hides, macaws, and a host of other basic commodities and luxury goods. Apparently in the Gila-Salt basin as well as in parts of Sonora, Sinaloa, Durango, and northern Chihuahua, access to and control of productive and organizational strategies, including trade, were dominated by elites, some of whom resided in towns with platform mounds, ballcourts, altars, earth pyramids, or other forms of public architecture. Some of these features, particularly ballcourts and platform mounds, which were employed to worship Quetzalcoatl and other deities in Mesoamerica (DiPeso 1979: 159-160; Gummerman and Haury 1979: 89), are perhaps indicative of complex religious and ceremonial systems that emerged after A.D. 1000 in the Greater Southwest. It is difficult to determine from archaeological evidence, however, the form and content of religious institutions.

Given the above picture, the question that remains to be addressed is how native life changed during the century preceding and immediately following the Conquest. As previously noted, no totally satisfactory answer to this question has been forthcoming. Because of a paucity of archaeological research, it is particularly difficult to trace the course of events and changes in northwest Mexico. However, when the limited archaeological data are supplemented with observations that were compiled by Spanish explorers between 1530-65, it is possible to discern patterns of cultural continuity and change, particularly in Sinaloa and central and eastern Sonora. The extent of this continuity will become more apparent in chapter 6, when the exploration chronicles are examined in detail to assess the cultural consequences of

introduced disease. For the moment it is instructive to note that Sinaloa and central and eastern Sonora continued to be densely populated with sophisticated economic and socio-political systems well into the historic period (Kelly 1945; Meighan 1971; Reff 1981; Sauer and Brand 1932). By contrast, many other areas of the Greater Southwest are said to have been largely or wholly abandoned by the mid fifteenth century.

Many archaeologists, for example, have assumed or inferred that by A.D. 1450, all or most Classic Period Hohokam sites in the Gila-Salt basin were abandoned (Gummerman and Haury 1979; Haury 1976). As noted earlier, it has been estimated that these towns and villages had upwards of 50,000 residents in ca. A.D. 1350. At the same time that the Gila-Salt basin was purportedly abandoned, the inhabitants of many or most compound villages in the Santa Cruz and San Pedro Valleys of southeastern Arizona are also said to have disappeared (Franklin and Masse 1976; Grebinger and Adam 1974; Hayden 1957). Similarly, by the mid 1400's, the **Papagueria** of southwestern Arizona is thought to have been largely depopulated. Further to the south, the Trincheras folk of northwestern Sonora are also thought to have experienced major reductions in population by A.D. 1450 (Goodyear 1977; Haury 1950; Sauer and Brand 1931). To the east, A.D. 1400-1450 marks the end of the Animas and El Paso Phase occupations of southern New Mexico and western Texas (LeBlanc 1980; Lehmer 1948; Schaafsma 1979). It is believed that during the fifteenth century all or most La Junta Focus settlements above the juncture of the Rio Grande and Rio Conchos were likewise forsaken (Kelley 1952a). This abandonment of southern New Mexico and western Texas is thought to have begun after villages and towns throughout northern Chihuahua were deserted, and Casas Grandes, itself, was

destroyed (c. A.D. 1340-1400) (DiPeso 1974: II). According to Kelley (1980), around the same time that Casas Grandes collapsed, the Chalchihuites folk disappeared from southern Chihuahua and Durango, leaving the region occupied solely by the Loma San Gabriel, the apparent forebearers of the historic Tepehuan (Foster 1978; Riley and Winters 1963).

As noted at the outset of the chapter, the reasons for the collapse are poorly understood. For years now, archaeologists have noted that the abandonment of many settlements seems to have occurred under duress. The evidence that supports this inference consists mostly of burned structures, unburied bodies, mutilated corpses, and other data that are highly suggestive of warfare (DiPeso 1974: II, 319-328; Martin and Plog 1973: 324). Warfare certainly was common during the prehistoric period, as is suggested by the construction of fortified retreats (*trincheras*) and pyral communication sites across southern Arizona and central and northern Sonora (Reff 1981; Sauer and Brand 1931; Stacy 1974). Elsewhere, the shifting of settlements to higher elevations and the use of compound enclosures also have been interpreted as evidence of hostilities (Martin and Plog 1973: 324; Doyel and Haury 1976: 131-132). Still, we know relatively little about the nature of this conflict and what part, if any, it played in the abandonment process. For many years the evidence for warfare was linked to an Athapaskan invasion of the Southwest. Numerous scholars believed that Navajo and Apache raiding may have been responsible for the abandonment of late prehistoric communities, particularly in the American Southwest (e.g. Gladwin 1957; Kidder et al. 1949). This hypothesis has been generally rejected, primarily because there are little data that indicate the Apache and Navajo arrived in the Southwest prior to A.D. 1500 (e.g. Gunnerson 1979). It also has become apparent that

it was not until the latter half of the seventeenth century that some Apache and Navajo bands became heavily involved in raiding (Wilcox 1981).

At present, most Southwesternists seem to think that warfare, rebellions, or other forms of social upheaval were consequences of deleterious climatic shifts. Many researchers have inferred that, between A.D. 1150-1350, the Greater Southwest experienced severe drought and/or a shift from a winter to summer dominant rainfall pattern that led to erosion and extensive down-cutting of rivers and streams. Changes of this nature have been reasonably well documented in northwestern New Mexico, northern Arizona, and east-central Arizona (Dean and Robinson 1977; Fritts 1965; Hill 1970; Schoenwetter and Dittert 1968; Slatter 1973), and are correlated with the abandonment of Anasazi settlements on the Colorado Plateau (Martin and Plog 1973). Although paleoenvironmental data is largely lacking from areas below the Mogollon Rim, many archaeologists have assumed or inferred that southern Arizona, southern New Mexico, and parts of northwest Mexico also suffered from climatic shifts. Many have argued that drought or intense summer floods would have resulted in the widespread abandonment of villages and towns that relied on floodwater or irrigation agriculture (Grebinger 1976; Grebinger and Adam 1974; Gerald 1975; Kelley 1952a; Weaver 1972, 1976). Some researchers also have suggested that at the outset of these environmental disturbances, groups such as the Hohokam of the Gila-Salt basin may have already exceeded their ability to manage their large canal networks, and were perhaps also experiencing a loss of cropland from soil salinization (e.g. El Zur 1965). Among the Hohokam as well as other populations, a decline in food production is thought to have led to stress, competition, and perhaps wars and rebellions that resulted in the destruction

and abandonment of many communities⁸ (e.g. DiPeso 1974: II, 1979a; Kelley 1952a; Hayden 1970).

The widely accepted belief that climatic shifts led to population-resource imbalances, which in turn led to warfare and other forms of social upheaval, is in many respects an attractive explanation of events and changes during the late prehistoric period. We have already seen that there is sufficient evidence of conflict or warfare that logically can be attributed to competition over scarce resources. There are several problems, however, with this model. First, almost all the evidence for deleterious climatic shifts comes from the Colorado Plateau; there have been very few paleoenvironmental studies that have produced the kind of data that is required to empirically demonstrate climatic shifts below the Mogollon Rim⁹. Although it is conceivable that northwest Mexico, southern Arizona, and southern New Mexico suffered from the same environmental disturbances that affected the Colorado Plateau, rarely have widespread climatic fluctuations in the Southwest exhibited such uniformity (e.g. Brazel et al. 1978; Stockton 1979). It seems unlikely, therefore, that drought or intense summer flooding which affected the Colorado Plateau would have necessarily occurred below the Mogollon Rim, and certainly not to the same extent. However, even if we assume that many areas of the Southwest were affected by drought or other climatic shifts, it still must be explained why so many communities were incapable of responding in a creative fashion to changing environmental circumstances. In this regard, it is difficult to understand why after more than a millennia of manipulating the environment and overcoming obstacles to increased food production, native peoples in many areas were uniformly unable to respond to changes in the physical environment. One would think

that some communities in various areas would have persisted, and perhaps, thrived. Similarly, it is difficult to understand how warfare could have contributed significantly to the sudden and prolonged decline in population that is implied by the collapse. Historically, warfare has led to short-term population reductions that have been quickly compensated for, often within a generation or two (Wrigley 1969).

There is good reason to question traditional interpretations of not only the causes of the collapse, but estimates of when the collapse occurred. Many archaeologists, following Kidder (1963: 342), have assumed that the abandonment of southern Arizona, southern New Mexico, and parts of northwest Mexico occurred a century or more prior to the advent of the European. Since the 1930's, many researchers have further narrowed the date of the collapse to the period from around A.D. 1350-1450. Significantly, this date or time range has been arrived at largely without the benefit of Carbon-14, dendrochronological, or archaeomagnetic dating techniques. With few exceptions, the dates for the abandonment of sites, and by extension, regions, has been derived through ceramic cross-dating, using non-local pottery from the Colorado Plateau. Much of this intrusive pottery, although not all (e.g. Hayden 1957: 129), has been reasonably well dated to the period A.D. 1175-1450 — the approximate lower and upper limits of the Animas, Cliff, El Paso, Civano, Sells, Tucson, and other "terminal" phases of the archaeological record.

Although ceramic cross-dating is a valuable technique, it can produce grossly inaccurate estimates of phase boundaries, particularly if the results obtained using the technique are not repeatedly checked against dates that have been secured using absolute means (e.g. Carbon-14). Indeed, without

absolute checks it is often difficult to be sure when a particular imported ceramic was made, acquired, and finally deposited in the archaeological record. For example, a vessel or example of a ceramic type that was continuously made on the Colorado Plateau from 1250-1450 could have been made and then traded to someone living in say, an Animas Phase village, at any time during this 200 year period. The recipient of the vessel may have abused or cherished it, and correspondingly, the vessel could have been broken one week or 100 years after its acquisition. Subsequently, the sherds or remains of the vessel might have been thrown into trash that had been accumulating for 150 years, or may have been used to start a new trash dump, one that was used for 100 years thereafter. These possibilities are very real. The point is that it is not always reasonable to assume that components at sites below the Mogollon Rim that have yielded intrusive pottery from the Colorado Plateau that was made between A.D. 1250-1450 date to this period. This is particularly true, when, as Schiffer (1982: 311) has pointed out with regard to Hohokam chronologies, minuscule samples of intrusive pottery from the surface or from disturbed deposits at multi-component sites have been used to make temporal assignments! Under these circumstances it is difficult to believe that the phase boundaries for the Hohokam, including the terminal date of A.D. 1450 for the Civano Phase, are secure. Since the Hohokam sequence, including the Classic Period, is perhaps the best documented sequence below the Mogollon Rim, one can hardly discount the possibility that errors of great magnitude have been made in figuring phase boundaries elsewhere¹⁰.

There are, in fact, a number of "anomalies" or instances where "prehistoric" pottery has been found in historical contexts that raise serious

doubts about the phase boundaries for the late prehistoric period¹¹. At a number of different sites in the Santa Cruz and San Pedro River Valleys in southern Arizona, DiPeso has reported finding in historic contexts many pottery types that purportedly were no longer made after A.D. 1450, including Tanque Verde Red on Brown, Pantano Red on Brown, Sells Red, Gila Plain, and Gila Polychrome (DiPeso 1951: 214, 1956: 316-321, 1958: 145, 1953: 134). Gila Polychrome also was recovered from the Joyce Well Site, one of the few Animas Phase sites from which Carbon-14 dates have been secured (LeBlanc 1980). Interestingly, while the Animas Phase and the production of Gila Polychrome are both thought to have ended by A.D. 1450, the C-14 dates from Joyce Well range from 1565-1620 (DiPeso 1976: 60). Also found with Gila Polychrome at Joyce Well are examples of Ramos Polychrome — another widely traded decorated ware from northern Chihuahua and southern New Mexico that is generally thought not to have been made after A.D. 1450. It is clear, however, that Ramos Polychrome as well as other pottery types such as Chupadero Black on White and El Paso Polychrome had long life spans (DiPeso 1976: 60; LeBlanc 1980: 313), suggesting the continuation beyond A.D. 1400-1450 of communities that produced and traded these ceramic types.

On the basis of the above evidence, it is reasonable to consider alternative explanations of when and why the collapse occurred. Since there is evidence that some, and perhaps many communities persisted after A.D. 1450, the collapse itself may profitably be re-defined. Rather than a sudden or cataclysmic phenomenon, the "collapse" should perhaps be seen as more of a decline — a decline that extended over a 150-200 year period in most areas, and that was characterized, in part, by frequent site abandonment.

This decline probably began, as many have suggested, around the mid 1300's, and was fueled by climatic shifts, rebellions, warfare, mis-management of resources, or any number of additional factors. The precise causes and timing of the failure of individual settlements is an empirical issue that can be resolved only with more problem oriented research. What is important, however, is the realization that, while some and perhaps many communities failed between A.D. 1350-1500, still many other villages and towns persisted into the 1500's and early 1600's. As the evidence to be discussed in chapter 4 indicates, it was at this time that Old World diseases penetrated the Greater Southwest, and a true collapse of sorts occurred in many areas.

When the collapse and the protohistoric period are viewed from the above perspective, several phenomena become more intelligible, including the "gap" in the archaeological record that has been reported in various areas of the Greater Southwest. The model offered here indicates that the reason why archaeologists frequently have been unable to locate protohistoric remains is because the recognition of these sites or components has been precluded by traditional chronologies — chronologies that, by definition, end the archaeological record at around A.D. 1450. If we assume that the gap in the archaeological record is more apparent than real, then various "anomalies" in the extant archaeological record, including "prehistoric" pottery that has been found in historic contexts, are no longer problematic. Similarly, by positing a decline as opposed to a sudden collapse we no longer need to invoke the unusual or mysterious to characterize and explain change during the late prehistoric period. In this regard, archaeologists frequently have postulated that whole cultures disappeared or emigrated from the Greater Southwest without specifying how and why they disappeared, or precisely where they

migrated to (c.f. Fontana et al. 1962: 84-93). It is more reasonable to view the discontinuities in the archaeological record as reflecting far reaching changes during the early historic period — changes that occurred over a short period of time and that resulted from Old World diseases. To date, this point has been overlooked by archaeologists, many of whom have preferred to account for "anomalies" in the archaeological record by invoking migrations (e.g. Masse 1981).

An additional positive feature of the model of the collapse being offered here is that it accounts for the lack of continuity that characterizes late prehistoric cultures and historic populations that are known to have occupied the same area. The much debated lack of continuity that characterizes the Hohokam and Pima, for example, is precisely what would be expected, given disease-induced reductions in population and cultural complexity during the 1600's¹². In this regard, it is instructive to recall the comments of a Pima informant who was questioned by Bandelier in the late 1890's about the fate of the Classic Period Hohokam. In keeping with the model of the collapse suggested here, Bandelier's Pima informant noted that some of the "great houses" or large towns of the Gila-Salt region were abandoned because of wars, and that all were forsaken following a fearful plague that decimated the Pima, leaving them too weak to rebuild their former settlements (Fewkes 1912: 71). Significant disease-induced reductions in population and the abandonment of established villages and towns also would have had a profound impact on Hohokam/Pima productive and organizational strategies. Communities that suddenly lost between 25-40% of their population would have great difficulty, for instance, in clearing, sowing, and harvesting agricultural fields; constructing and maintaining irrigation

systems; organizing communal hunts; or preparing food for peak periods of consumption and scarcity. Without regular surpluses, craft specialization would decline and local and long-distance exchange would languish. The collapse of productive and organizational strategies would likewise undermine the status of elites empowered through differential access to or control of crop-surpluses and trade. In point of fact, the great loss of life and the unprecedented suffering caused by diseases such as smallpox would have had a profound impact on all aspects of native life.

In the absence of appropriate archaeological data the model outlined above remains one of several arguable perspectives on the collapse. The archaeological record is not, however, our only source of data on the protohistoric period. Many years before the Jesuits and Franciscans began working in the Greater Southwest, Spanish explorers penetrated the region, compiling reports that are useful in reconstructing native life both before and after the invasion of the Americas.

NOTES TO CHAPTER II

1. The dating of the Vahki and many subsequent phases of the Hohokam sequence remains uncertain because of a lack of good chronological controls. Although Haury (1976) has argued that the Hohokam first appeared in Arizona centuries before the time of Christ, many researchers believe the Vahki Phase dates to the opening centuries of the Christian era, if not later (see DiPeso 1976; Doyel and Plog 1979; Gummerman and Haury 1979; Haury 1976; Schiffer 1982).
2. **Trincheras** seen by the author in central Sonora, some of which were described by Sauer and Brand (1931), required enormous expenditures of labor. The walls of many **trincheras** consist of piled-up stone, four or five feet wide, and more than four feet high. Often the walls cover a linear distance of several miles.
3. Not all **trincheras** apparently were used only as defensive retreats, as some reportedly have extensive cultural deposits, and were apparently occupied on a long-term bases (see Sauer and Brand 1931; Stacy 1974). Whether these **trincheras** were designed as residence sites or assumed this status as a result of chronic warfare is uncertain.
4. The unearthing of ballcourts, platform mounds, and items such as copper bells and macaws has led to a great deal of debate and controversy, much of which has centered around the issue of whether Mesoamerica played a dynamic role in the evolution of Southwestern societies (c.f. DiPeso 1974: I-III; Haury 1945a; Kelley 1966, 1980; Martin and Plog 1973; McGuire 1982; Pailes and Whitecotton 1979). Today, as in the past, most archaeologists reject the idea that Mesoamerica directly influenced developments in the Greater Southwest (e.g. Cordell and Plog 1979; Martin and Plog 1973). There are other archaeologists, however, who believe there were numerous occasions when groups from Mesoamerica colonized areas of the Greater Southwest, specifically for the purpose of acquiring turquoise and other rare resources that were prized by elites in Mesoamerica. Many argue that it was within the context of colonialism that Mesoamerican traits and trade items frequently were introduced prehistorically in the Greater Southwest (e.g. DiPeso 1974: II; Kelley 1966; Pailes and Whitecotton 1979; Weigand 1981).
5. Although DiPeso (1974: II) has argued persuasively that Paquime was an important supplier of turquoise and other rare resources prized by elites in Mesoamerica, there is little or no direct evidence to support this inference.
6. Leblanc (1980) recently has referred to several regional variants of the Animas Phase, specifically the Black Mountain Phase and, later in time, the

Cliff Phase. More research is needed before we can determine whether these distinctions are truly meaningful.

7. Figures compiled by Leblanc (1980: 273, 281) show that sherds of Babicora, Ramos, Gila, and other undifferentiated Chihuahuan polychromes constitute 5% or more of the pottery that has been found at Animas Phase Sites. Playas Red frequently constitutes better than 10% of the pottery that has been recovered from Animas sites.

8. To this list of causes for the collapse others can be added that have not been as widely accepted, including earthquakes, the dissolution of economic ties with Mesoamerica, and epidemics that resulted from overcrowding and unsanitary living conditions (Gummerman and Haury 1979; Kelley 1952a).

9. There have been many studies of archaeological pollen from sites below the Mogollon Rim, for example, that have been largely unsuccessful in reconstructing past climates, primarily because of the difficulties involved in isolating economic from climate-caused pollen (e.g. Bohrer 1970; Grebinger and Adam 1974: 238).

10. The fact that the Hohokam sequence is the best documented does not mean it is well documented; very few Hohokam sites besides Snaketown have been excavated or reported. Still, more has been published on the Hohokam than most other cultures below the Colorado Plateau.

11. There are also instances where historic artifacts have been found in "prehistoric" contexts. Hayden (1957: 178) notes, for example, that a majolica bowl was apparently found by Ben Wetherhill on the floor of what was thought to be a Civano phase (A.D. 1300-1450) structure at University Indian Ruin, outside Tucson. The bowl was reportedly lying on the floor, and was covered by roof-fall.

12. This point was made some years ago by Dobyms and Ezell (Ezell 1963; Dobyms 1976: 334), specifically with regard to the Hohokam and Pima.

CHAPTER III

THE SONS OF THE SUN

Between 1530-1565, Spanish explorers penetrated many areas of northwest Mexico and the American Southwest. These "sons of the sun", as they often were called by the Indians¹, compiled informative reports that frequently have been ignored by anthropologists when reconstructing aboriginal culture. Part of the reason for this neglect is the fact that the explorers often failed to indicate their precise travel routes and, thus, the location and identity of native settlements and groups that were described in their chronicles² (e.g. DiPeso 1974: IV; Hedrick 1978; Reff 1981; Riley 1976; Sauer 1932; Undreiner 1947). The *conquistadores'* accounts also have been ignored or held suspect on the grounds that the explorers exaggerated or lied about the size and complexity of native populations, presumably to enhance the importance of their discoveries or efforts on behalf of the Crown (e.g. Hodge 1912: 234; Mecham 1927: 157). Rarely, however, has this charge been substantiated; frequently it has been levelled without explaining on what grounds the explorers' statements are to be rejected (Meighan 1971: 755; Sauer 1935: 1; Dobyns 1966).

Apparently many researchers have discounted the explorer's observations, particularly references to large populations with sophisticated socio-political systems, because the explorers were contradicted by the later missionaries. Implicitly, many have assumed that the priests, being religious,

were trustworthy, while the explorers, being soldiers of fortune, were apt to lie or exaggerate. It is arguable that the explorers also have been deemed untrustworthy because their observations do not conform to the centuries old view of the dynamics of acculturative processes during the early historic period. Clearly those who assume that mission innovations revolutionized native life are more apt to conclude that the explorers lied when they reported native towns, intensive agriculture, crop surpluses, craft production and other "advances" that have been attributed to missionization.

In the remainder of this chapter the explorers' accounts will be examined in detail. Although a number of the exploration chronicles admittedly are difficult to interpret, recent archaeological data from Sonora has shed important light on the location of Corazones and Senora (Reff 1981), two settlements and "provinces" that figure prominently in many of the exploration chronicles. With compelling evidence that Senora and Corazones were in the Rio Sonora Valley, it is now possible to be more precise in reconstructing several of the explorers' routes. Significantly, the explorers' accounts, when examined in the light of the archaeological record as well as the later writings of the missionaries, make it possible to reconstruct aboriginal culture.

Spanish Exploration of the Greater Southwest

Prelude to Exploration

The seeds of Spanish exploration of the Greater Southwest sprouted during the Conquest of Mexico. Although one would think that the Conquest would have satisfied momentarily, at least, the Spaniards desire for wealth, power, and converts, its most immediate effect was to create a longing for

still greater discoveries and acquisitions. Indeed, within months of the fall of Tenochtitlan, Cortes turned his attention to what had for centuries fired the imagination of all Europe — the discovery of the long sought after route to China, India, and the Spice Islands³.

Like many of his contemporaries, Cortes believed that America was a southeastern projection of the Asiatic mainland. He further concluded that by sailing up the west coast of Mexico and then turning west, and finally south, Columbus' dream of reaching the Orient would at last be realized (Bancroft 1884: 1-25). With this goal in mind, Cortes despatched several overland expeditions in 1521 that took possession of the Pacific coast at Tehuantepec, Tututepec, and Zacatula. At the last location a suitable harbor was found and work was begun on several ships that were to be sent to explore the mysteries of the South Sea. While the ships were being constructed, Spanish and allied forces conquered the nearby provinces of Colima and Avalos. During the conquest information was obtained in Colima of lands rich in gold and pearls, including an island that was purportedly inhabited by Amazons, ten days travel to the north. Not surprisingly, these reports were warmly received by Cortes, who anticipated finding rich islands and provinces to the northwest, along the route to the Orient. Wasting no time, Cortes in 1524 sent his kinsman, Francisco Cortes de Buenaventura, to investigate and take possession of the region north of Colima. The younger Cortes departed from the Villa of Colima, ascended the Mexican Plateau and subsequently explored as far north as the village of Jalisco or Tepic, in central Nayarit (Sauer 1948). Although the Spaniards found little gold or other hoped for riches, they returned with new reports — reports that were to continue for many years to come — of wealthy provinces still further to

the north. The stage was thus set at an early date for Spanish exploration of the Greater Southwest.

The Conquest of Nueva Galicia

Neither Cortes nor those who followed his standard were the first Spaniards, however, to penetrate the mysterious lands north of Tepic. Conflicts with those who coveted his power and influence forced Cortes to put aside his plans for northern exploration, and in 1528, Cortes left Mexico for Spain⁴. During Cortes' absence, the infamous Nuno Beltran de Guzman was appointed President of the powerful, first **Audiencia** of Mexico⁵. No sooner did Guzman take office, in January, 1529, when he embarked on a reign of terror that quickly alienated all but the staunchest opponents of Cortes⁶. Indeed, by the fall of 1529 it had become apparent to Guzman himself that he had irreparably violated his Royal prerogative. To make matters worse, Guzman learned that Cortes would soon return to Mexico, amply vindicated with the title of Marquis and other Royal concessions, including the right to resume exploration of the South Sea. Aware of his impending demise, and familiar with tales of rich and mysterious lands to the northwest, Guzman promptly organized an expedition to "conquer" Jalisco and Nayarit as well as explore the region beyond Tepic — an expedition that he hoped would disclose great riches and, thus, forestall the wrath of the Crown.

Guzman's expedition, which resulted in the conquest and creation of the province of Nueva Galicia⁷, produced the first European observations on the descendants of the Aztatlan culture or horizon, as it is known archaeologically. Many of these observations are in depositions that were taken as part of legal proceedings against Guzman for his actions during the

conquest (Carrera Stampa 1955; Icazbalceta 1866: II; Pacheco y Cardenas 1870: XIV). Although the documents are not altogether easy to interpret, they are perhaps the least problematical of the exploration chronicles with regard to the expeditions' itinerary. It is possible, therefore, to identify groups or areas discussed in the documents, and then evaluate the extent to which the explorers' ethnographic observations correspond with the extant archaeological record. This task was undertaken many years ago by Sauer and Brand (1932). Although important archaeological research has been conducted in west Mexico since 1932, Sauer and Brand's analysis remains unsurpassed, and will be followed in large part here. Significantly, it will be seen that the explorers' accounts agree with the archaeological record regarding the presence of large populations and complex societies in northern Nayarit and Sinaloa during the protohistoric period.

Guzman's expedition left Mexico in December of 1529, and consisted of several hundred well equipped Spaniards and approximately 7,000 Tlascaltec and Aztec soldiers⁸. Accompanying the expedition was the Tarascan King or **Caltzontzin**, an acknowledged friend of Cortes. For several months prior to the expedition, the **Caltzontzin** had been held captive in Mexico by Guzman and the **Audiencia**, principally to extract ransom from the King's subjects in Michoacan. During the first leg of Guzman's journey, the King was escorted back to Tzintzuntzan, where Guzman renewed his demands for gold, and further demanded 8,000 Tarascans to act as servants for his expedition. The **Caltzontzin** met the latter demand, but was unable to furnish Guzman with sufficient material wealth. Dissatisfied, Guzman had the King tortured and then burned at the stake (Craine and Reindrop 1970: 89-100). An indication of things to come, Guzman and his army, now

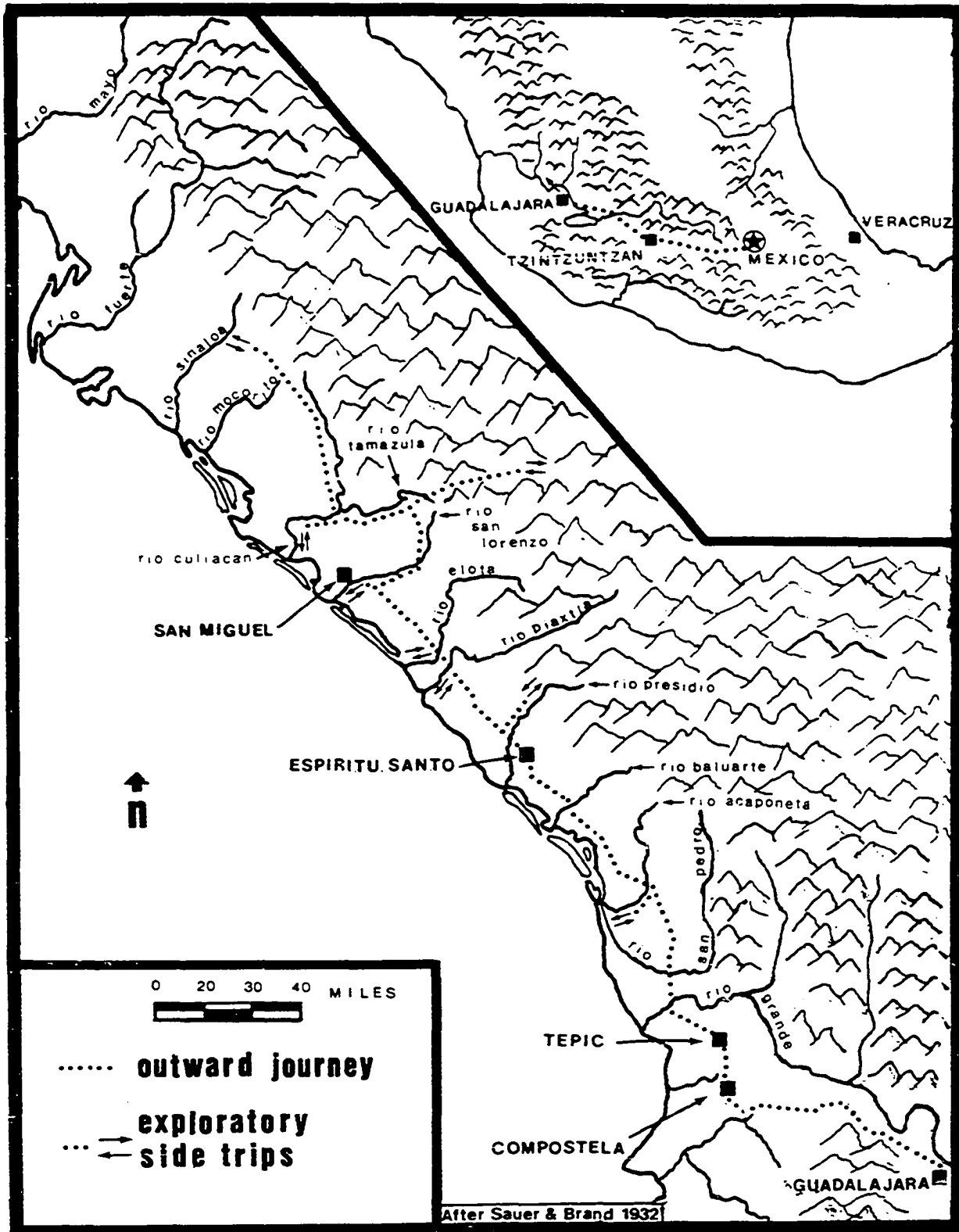


Fig. 5. POSTULATED ROUTE OF NUNO DE GUZMAN'S EXPEDITION

bolstered by 8,000 auxiliaries, blazed a trail of destruction across Michoacan, Jalisco, and southern Nayarit, halting momentarily at Tepic in May of 1530 (Bancroft 1883: 341-356; Brand 1970).

Guzman's army remained at Tepic for several weeks, securing supplies and the submission of native caciques in the surrounding region. Subsequently, the invaders made their way north and west into lands inhabited by the Totorame, Pinome speakers who inhabited the coastal plain from Tepic (Jalisco) as far north as the Rio Piaxtla (Sauer and Brand 1932: 56-58). At the Rio Grande, Guzman took possession of the River and assigned all future conquests to "Greater Spain", a title that was subsequently rejected by the Crown and replaced with the less pretentious Nueva Galicia. No sooner had Guzman taken possession of the Rio Grande when he was besieged by an army nearly the size of his own, from the surrounding province of Sentispac. After several hours of fierce fighting, during which time 5,000 Indians purportedly died on both sides (Bancroft 1883: 356, f.38), Guzman's army and auxiliaries prevailed. The victors subsequently marched to the Rio San Pedro and Omitlan, the capital of Sentispac. Here, near modern Tuxpan, the army rested during June and early July, taking advantage of the defeated populace and their food supply.

As Sauer and Brand (1932: 43) have pointed out, the fact that Guzman's army of better than 10,000 was fed at Omitlan for more than a month is a clear indication that the province of Sentispac was densely populated. If Fray Antonio Tello is to be believed⁹, the province encompassed innumerable villages and towns, including Sentispac itself, which reportedly had a population of over 10,000 (Tello 1891: 104-112). Several of Guzman's officers mentioned or alluded to native settlements on or near

artificial mounds, a prominent archaeological feature in northern Nayarit and southern Sinaloa (Sauer and Brand 1932: 44). Another eyewitness reported there were some 40 pueblos in the province that were subject to the Ruler of Sentispac (Carrera Stampa 1955: 137). The Chief (Ocelotl) purportedly had 300 porters and servants and collected tribute in the form of gold and silver from subjects living in the distant Sierras (Tello 1891: 104-105).

After tarrying at Omitlan for some forty days, Guzman's expedition renewed its march northward across the great expanse of tidal flats, marshlands, and lagoons that extend almost uninterrupted from the Rio San Pedro as far as the Acaponeta Valley. After travelling approximately 10 leagues¹⁰, Guzman's army encamped near present-day San Felipe on the Rio Acaponeta, in the province of Aztatlan. Here, Guzman again was confronted by several thousand natives assembled for battle on a large earth mound. After putting the enemy to flight, Guzman despatched scouting parties that returned with news that large populations with abundant food were found on both sides of the Acaponeta river, extending as far as the sea. With the promise of abundant food, Guzman decided to remain at Aztatlan and await the passing of the rainy season, which already had greatly slowed the expedition's progress. In a month's time, the Spaniards reportedly collected enough food to feed the entire army for two years (Pacheco y Cardenas 1870: XIV, 436), a clear indication that the region was densely populated. Unfortunately for Guzman, after stocking-up on both food and slaves, the expedition's supplies and many of its captives perished in a tropical storm. The storm occurred in late September and was coincident with an outbreak of malaria, typhoid, and/or dysentery that killed thousands of Guzman's Indian allies and Tarascan auxiliaries¹¹ (Carrera Stampa 1955: 109, 138, 154).

According to one source, more would have died were it not for the army's retreat to some houses "on high banks, made by hand", still another apparent reference to earth mounds that have been documented archaeologically in the Acaponeta Valley (Pacheco y Cardenas 1870: XIV, 437; Sauer and Brand 1932: 45).

With his army decimated by hunger and disease, Guzman sent his **maestro de campo** south to Jalisco and Michoacan for reinforcements. At the same time, a scouting party was sent north that reached the town and province of Chametla, along the Rio Baluarte. To Guzman's delight, the reconnaissance returned with 150 native porters bearing fowl for relief of the expedition (Carrera Stampa 1955: 139). Subsequently, a large native escort helped Guzman's army move its baggage and meager supplies from Aztatlan to Chametla. The remnants of Guzman's army arrived in late November or early December, and were welcomed by 5,000 warriors, led by the local cacique. The latter reportedly had 22 subject pueblos (Carrera Stampa 1955: 139), and furnished Guzman and his army with supplies for 2 months. At the end of this period, in January, 1531, several thousand impressed reinforcements arrived from Jalisco and Michoacan (Carrera Stampa 1955: 189), restoring Guzman's army to close to its original size. In keeping with the tenor of the expedition, once his army was replenished, Guzman re-paid his hosts by provoking them to acts of hostility that resulted in many native settlements being destroyed and their inhabitants enslaved.

After departing Chametla, Guzman's army continued its march northward, subduing or receiving the submission of native populations along the Rio Presidio and Piaxtla. Each of these rivers reportedly were lined with numerous villages and towns, particularly the Presidio, which, according to

Tello (1891: 254), had a population of around 40,000. Pressing onward, still hoping to find the wealthy and mysterious land of the Amazons, Guzman's army travelled some 3 leagues from the Rio Piaxtla to the Rio Elota. En route, Guzman's interpreters reported the natives were unfamiliar with Nahuatl, and apparently spoke a language different from Pinome. Guzman's army was in fact among Tahue speakers who inhabited the coastal plain from the Piaxtla as far north as the Rio Mocerito. The Tahue reportedly enjoyed a higher standard of living as compared with the Totorame (Sauer and Brand 1932: 55). The first signs of greater cultural complexity apparently were observed in several large settlements at the mouth of the Rio Elota. Apparently the inhabitants of the Rio Elota expended considerable effort harvesting salt from the sea, as the Spaniards reported finding several great piles of salt (Carrera Stampa 1955: 155). Unfortunately, the natives gave the Spaniards very little gold and Guzman retaliated by having entire settlements destroyed. The expedition subsequently marched upstream past numerous villages and several large towns, halting momentarily at the town of Bayla near the base of the Sierras. Here Guzman's army rested for a week in late February, contemplating native reports that they were at last nearing the long sought after land of the Amazons (Sauer and Brand 1934: 47-48).

Spurred on by lust and greed, the invaders marched to the Rio San Lorenzo. Near the mouth of the river the Spaniards found several large settlements that contained women and children and a few old men. Guzman's army promptly mistook the absence of men, who were gathering for war, as an indication that the expedition had finally reached the promised land (Carrera Stampa 1955: 116-117, 142-143). However, with the onset of hostilities, the myth of a land inhabited solely by women was soon

dispelled. Subsequent advances up the Rio San Lorenzo likewise revealed little gold or other hoped for riches. All along the river, however, the Spaniards discovered numerous large villages and towns, including one settlement (Horaba) whose inhabitants had built a weir across the river that reportedly yielded enough fish to feed the population of Seville (Carrera Stampa 1955: 154-155). Again, Guzman's army overran the valley, taking captives as slaves and leaving those who fled with nothing more than the prospect of having to rebuild their settlements, destroyed in the wake of the army's advance (Sauer and Brand 1932: 47-48).

Although disappointed with the expedition's most recent failure to disclose great riches, Guzman pushed further up the Rio San Lorenzo to the foothills of the sierras. His army at this point turned to the north and the Rio Tamazula. As they descended the latter river, the Spaniards marvelled at the size and number of native settlements that were encountered. Further advances down the Tamazula brought the army to the rivers junction with the Humaya. Here, several pueblos of enormous size were found, including one that reportedly was large enough to quarter an army twice the size of Guzman's (Pacheco y Cardenas 1870: XIV, 448-449). Beyond the junction of the two rivers, along the Rio Culiacan, the Spaniards continued to encounter sizeable villages and towns, many with 500-600 houses. Native settlements reportedly extended almost to the sea. In several towns the Spaniards noted enclosed *tiangués* or market places that reportedly were comparable to those in Mexico, where cotton, fruit, fish, and other commodities were purchased (Carrera Stampa 1955: 125, 156-157). The Spaniards also noted the presence of elites who were carried in hammocks and who were said to have more than 200 subject pueblos (Pacheco Y Cardenas 1870: XIV, 458-460). Many of

the elites or *Senores*, including both men and women, wore ear pendants of silver and arm and leg bracelets with turquoise (Carrera Stampa 1955: 157). Unfortunately for Guzman, none of the pueblos yielded large amounts of gold, the Spaniards' principal addiction.

Guzman's army remained in the Culiacan Valley for roughly seven months. During this time, Guzman made several last attempts at gaining fame and fortune. Unable to locate Aztatlan, Guzman turned his attention to the famed Seven Cities of what later was called Cibola. Apparently prior to his departure from Mexico, Guzman had learned that the cities were rich in gold and could be reached by travelling some 40 days to the north¹². To learn more about the Seven Cities, Guzman sent a scouting party from the Rio Culiacan northward that penetrated as far as the Rio Petatlan (Sinaloa). Several additional parties ascended the Rio Humaya and San Lorenzo, penetrating the sierras around Topia and crossing into western Chihuahua and northwestern Durango. Much to Guzman's dismay, these expeditions returned with no news of the Seven Cities, reporting instead significant decreases in native population and cultural complexity. The expedition had in effect exhausted its last hope of finding great riches.

By the fall of 1531, Guzman had resolved to consolidate his newly conquered province of "Greater Spain", rather than continue exploring and running the risk of losing his army, which had become exhausted and disheartened by dreams unfulfilled. After establishing in October the Villa of San Miguel de Culiacan on the Rio San Lorenzo, Guzman retraced the expedition's footsteps, founding additional Spanish settlements to the north of Chametia (Espirutu Santo), near Tepic (Compostela), and at Nochistlan (Guadalajara). During the course of the next decade each settlement

maintained a precarious existence¹³, as many of Guzman's soldiers who were installed as residents either fled to Mexico and Peru or were killed by their native subjects. With respect to Guzman himself, his murder of the King of Michoacan as well as his actions during the conquest contributed to his arrest and imprisonment in 1537.

The aboriginal culture of the Totorame and Tahue. Although the accounts of Guzman's expedition are brief and lack many ethnographic particulars, they nevertheless provide a reasonably good picture of aboriginal culture in northern Nayarit and Sinaloa. Importantly, as Sauer and Brand (1932: 50) have pointed out, the eyewitness accounts of the expedition are consistent with each other, and have all the appearances of truthfulness with regard to the size and complexity of native populations. No less important is the fact that many of the explorers' observations agree with the extant archaeological record from northern Nayarit and Sinaloa (e.g. Bell 1971; Kelly 1945; Meighan 1971, 1974; Sauer and Brand 1932).

With respect to population, neither the archaeological record nor the explorers' accounts provide the kind of data that is needed to make precise estimates. It is nevertheless apparent that each major river valley in northern Nayarit and southern Sinaloa was densely populated at the time of the conquest. This was particularly true of the Totorame area (Sauer 1935: 9-10). As Sauer and Brand have noted (Sauer 1935: 6-10; Sauer and Brand 1932: 50-51), when the explorers' observations regarding the location, size, and number of native settlements are compared with modern settlement patterns, it is clear that the aboriginal population of the coastal plain, from the Rio Santiago as far north as the Rio Mocerito, equalled or surpassed the modern population of the same area, which numbered around 225,000 in 1926.

Indeed, the aboriginal population may very well have been twice this size, as suggested by Torquemada, who reported the province of Culiacan had a population of 600,000 at the time of the conquest¹⁴ (Sauer and Brand 1932: 49). More recently, Borah and Cook (1963: 88) have estimated that the pre-Conquest population for all of Nayarit and southern and central Sinaloa numbered close to 700,000.

An aboriginal population of close to half a million certainly accords well with the explorers' observations regarding the location, size, and number of native settlements in northern Nayarit and Southern and central Sinaloa. In keeping with what has been observed archaeologically (e.g. Sauer and Brand 1932: 17), many explorers noted that each major river valley was characterized by a nearly continuous distribution of villages, often extending from the foothills as far as the sea. Each valley also appears to have had one or more large towns or urban centers with populations that numbered well into the thousands. This much is indicated by the explorer's reports of native settlements that easily accommodated Guzman's army of better than 10,000. The exploration chronicles suggest that both large towns and smaller villages consisted of dwellings of straw thatch, some or many of which had ramadas and were built on raised platforms. This characterization agrees with the archaeological record (Kelly 1945: 3; Sauer and Brand 1932: 36), as does Oviedo y Valdes' (1856: III, 561-562) comment that the pueblos of Chametla contained many flat-roofed adobe houses, some of which were used to house bee hives from which the natives extracted honey and wax. Archaeological evidence indicates that structures of adobe with stone foundations were present in Chametla as well as in other areas of Nayarit and Sinaloa at the time of Guzman's conquest (Sauer and Brand 1932: 36).

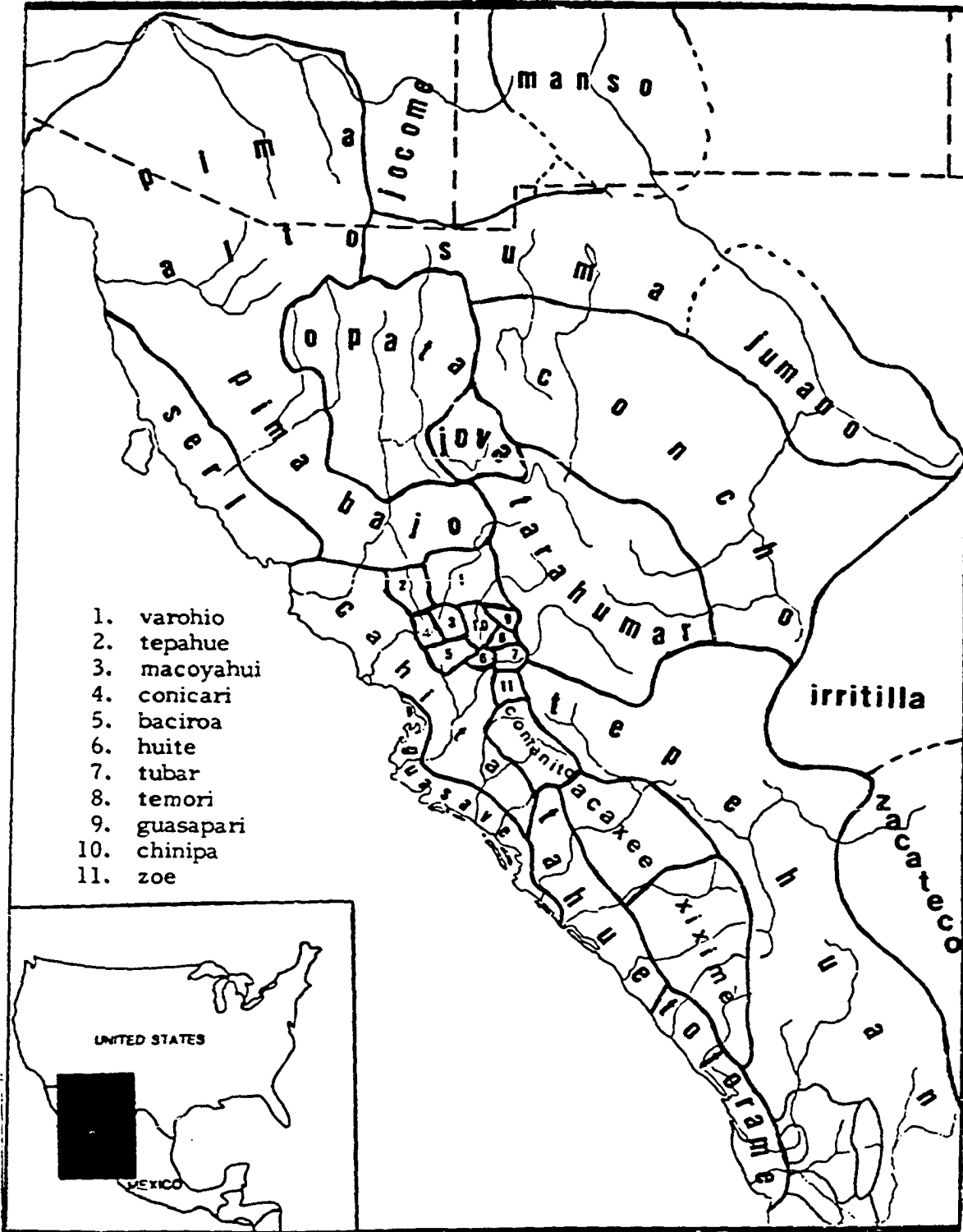


Fig. 6. DISTRIBUTION OF NATIVE POPULATIONS IN NORTHWEST MEXICO

The presence of a large and dense population in Nayarit and Sinaloa was made possible by sophisticated productive and organizational strategies. One measure of the success of these strategies is the relative ease with which Guzman's army was able to acquire several months provisions at Omitlan, Aztatlan, Chametla, and while in the Culiacan Valley. Although the explorers said little about agricultural practices, native peoples in Nayarit and Sinaloa apparently were quite adept at floodwater farming, and in some cases, produced three crops of maize annually (Pacheco y Cardenas 1870: XIV, 391). Beans, squash, peppers, egg plant, and cotton also were reportedly cultivated, with the latter providing the principal source of clothing. There are likewise numerous references in the explorers' accounts to native procurement of fish, shellfish, and other marine resources, including reports of a weir being used by the inhabitants of the lower Rio San Lorenzo and of salt mining near the mouth of the Rio Elota. The inhabitants of northern Nayarit and southern Sinaloa also exploited a variety of fowl, including what were apparently domesticated ducks, turkeys, and perhaps curassow. To this list of foodstuffs others can be added, including honey, dogs, and a wide variety of wild resources. Finally, reports of markets in the Culiacan Valley that purportedly were comparable to those in Mexico further indicate that both the production and distribution of foodstuffs were commensurate with the needs of a large and dense population (Sauer and Brand 1932: 51-56). It appears safe to assume that these same markets also served as an outlet for feathers, pearls, shell, silver, turquoise, copper, and other craft items that were prized by the inhabitants of west Mexico (Meighan 1971: 755; Sauer and Brand 1932: 54).

In general, all evidence points to the presence of elaborate productive

and organizational strategies in west Mexico at the time of Guzman's conquest. Similarly, the explorers' accounts suggest that the inhabitants of the region had evolved sophisticated socio-political systems. Although several researchers believe Sentispac, Aztatlan, Chametla, and Culiacan each constituted state level societies (e.g. Kelly 1945; Sauer 1935: 9), the extant evidence is far too general to make such precise statements. We can, at best, note only that each of the four provinces apparently constituted independent political entities, dominated by local elites who enjoyed differential access to and control of goods and services. This is variously implied by the explorers in their brief comments regarding native caciques and nobility, some of whom were carried in hammocks, wore large amounts of turquoise, were attended by servants, and who reportedly exercised considerable authority over many tributary settlements — settlements that were called upon to provide provisions for Guzman's expedition. The explorers' accounts likewise indicate that Sentispac, Aztatlan, Chametla, and Culiacan had large, well organized armies that were as well equipped as those in central Mexico. However, for all their sophistication, it does not appear that the inhabitants of Nayarit and Sinaloa had much experience at large-scale warfare. This may be a reflection of the political autonomy of each province. For whatever reasons, once Guzman's army defeated the forces of Sentispac at the Rio Grande, his army easily overcame all subsequent attempts to block the expeditions northward march (Sauer and Brand 1932: 51-56). This lack of significant native resistance contributed to one of the darkest moments in Amerindian history, as Guzman's *er.rada* destroyed much of the fabric of Indian life in northern Nayarit and southern and central Sinaloa.

The Expedition of Diego de Guzman

During the months following the conquest of Nueva Galicia, approximately 100 of Guzman's soldiers settled in or about the Villa of San Miguel de Culiacan (Bancroft 1884: 37-38). With few exceptions, Guzman's soldiers shunned farming or other worthwhile pursuits and made a living plundering native settlements for tribute and slaves. Apparently at Guzman's direction or with his acquiescence, slave raiding also was coupled with further exploration north of the Culiacan Valley. This much is apparent from the accounts of an expedition that was undertaken in 1533 by Guzman's nephew, Diego de Guzman. Alarmed at Cortes' renewed exploration by sea of the northwest coast¹⁵, Guzman instructed his nephew to explore the region to the north of the Villa of San Miguel, specifically to locate the famed Seven Cities. At the same time, the younger Guzman apparently was given permission to enslave any and all natives that refused to pay homage to the invaders.

Diego de Guzman's **entrada** is of interest here because it produced the first European observations on the Cahita and neighboring populations in northern Sinaloa and southern-most Sonora. These observations are in reports by Diego de Guzman (Pacheco y Cardenas 1864-1884: XV) and an unknown participant in the expedition, referred to as the "Second Anonymous Reporter"¹⁶ (Carrera Stampa 1955; Icazbalceta 1866: II), both of which recently have been translated into English (Hedrick and Riley 1976). Unfortunately, whether in Spanish or English, the accounts of Diego de Guzman's **entrada** at times are vague or lack information regarding the expeditions' itinerary. Guzman's travel route was established with some certainty, however, by Bancroft (1884: 55-58) and later, Sauer (1932), both of

whom were in general agreement regarding the route taken by Guzman. Although DiPeso (1974: IV) recently has proposed an alternative routing of Guzman's expedition, one that differs substantially from that proposed by Bancroft and Sauer, DiPeso ignores the account of the Second Anonymous Reporter. The failure to consider this source forces DiPeso to make a number of assumptions and inferences of dubious validity (e.g. Hedrick and Riley 1976: 34-37; Sheridan 1981: 89, f. 2)). Fewer of these assumptions and inferences were made by Bancroft and Sauer, and thus their rendering of Guzman's itinerary will be followed for the most part below.

Guzman's expedition left the Culiacan Valley on the fourth of July, 1533, and consisted of an unknown number of Spanish cavalry, infantry, and Indian allies¹⁷. After travelling approximately 20 leagues to the north, the expedition reached a village called Cinume with some 60 mat houses apparently on or near the middle Mocerito River¹⁸. The village was largely deserted and only a few of its inhabitants were captured by the Spaniards. Guzman subsequently took 20 horsemen and infantry and travelled approximately 12 leagues to the town and river of Petatlan (Sinaloa), the previous limit of Spanish exploration north of the Rio Culiacan¹⁹. Petatlan reportedly had 80 houses, but recently had been abandoned. Although Guzman attributed the absence of people to the fact that the river had overflowed its banks, inundating the village (Hedrick and Riley 1976: 17), the inhabitants of Petatlan probably fled to avoid capture and enslavement. This proved to be the case almost everywhere Guzman travelled, and may explain the Second Anonymous Reporter's statement that the Petatlan River had "a number of people, but not a great many"²⁰ (Hedrick and Riley 1976: 39).

The day after Guzman arrived at Petatlan he was joined by the

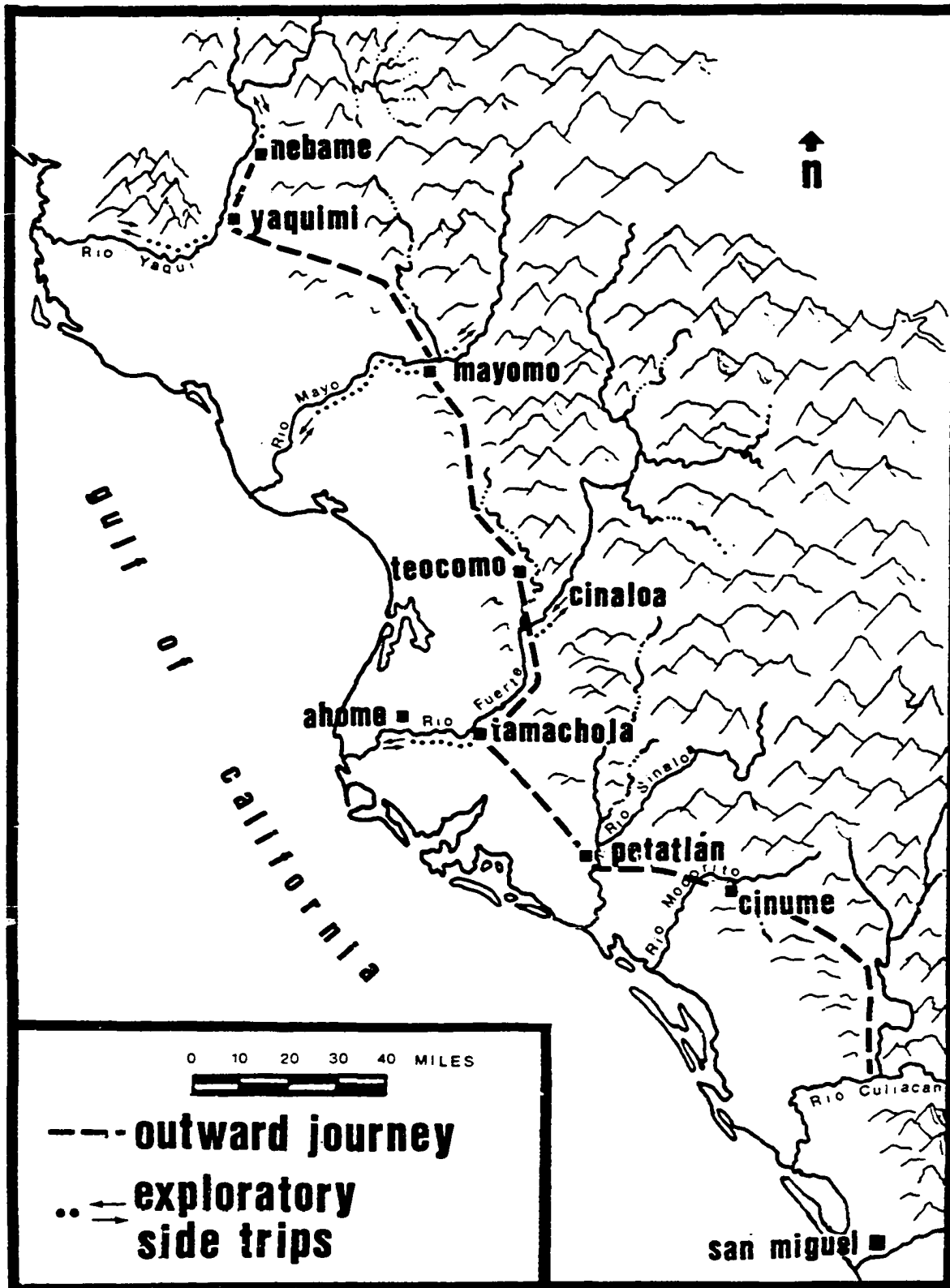


Fig. 7. POSTULATED ROUTE OF DIEGO DE GUZMAN'S EXPEDITION

remainder of his army. Six horsemen subsequently went five leagues down river to search for provisions. The scouting party returned after seizing some maize that was found in a small settlement that apparently was forsaken as the Spaniards approached. Two Indians also were captured who told the Spaniards that two days journey would bring them to another larger river and town where greater amounts of food could be obtained. Guzman promptly despatched ten horsemen and four foot soldiers to investigate the reports. After travelling for 3 days, the reconnaissance reached the town of Tamachola, apparently along the lower Rio Fuerte²¹. The town was six leagues from the sea, and was surrounded by other native settlements that extended in a radius of five leagues (Hedrick and Riley 1976: 40). As the Spaniards approached Tamachola, the inhabitants fled, many reportedly jumping into the river to escape capture. Once in the town, the Spaniards discovered it was without maize, although nearby there were many planted fields (Hedrick and Riley 1976: 30). The reconnaissance learned from several captives of another large town toward the sea that apparently was better provisioned. This information was relayed to Guzman who hastened north with the main body of the army.

After arriving at Tamachola, Guzman travelled down stream with a small detachment of men to a town called Oremy (Ahome), near present day Los Mochis. Much to Guzman's dismay, the inhabitants of the town had fled, apparently taking whatever food they had with them. Guzman promptly rejoined his army at Tamachola, and after learning of another more populous province, the expedition travelled some 30 leagues up the Rio Fuerte. En route the Spaniards noted the river had "nice towns and many people", and the inhabitants of the river had the same language (Cahita), customs, houses,

food, and rites of those along the Rio Petatlan (Sinaloa) (Hedrick and Riley 1976: 40).

After ascending the Rio Fuerte, Guzman's army in late July reached the province of Cinaloa, above the modern town of El Fuerte. The province reportedly had 20 or 25 towns, each with 100 to 200-300 mat houses (Hedrick and Riley 1976: 19, 41). Unlike their neighbors along the lower Fuerte or those of the Rio Petatlan, the Cinaloans promptly made it known through shows of military force that the Spaniards were not welcome²². Outnumbered, Guzman's army cautiously surveyed the province, learning of a town called Teocomo and a river and village of Mayomo, several days travel further on.

To reach Teocomo it was necessary to cross the Rio Fuerte, which reached flood stage shortly after the Spaniards arrived in the province of Cinaloa. Once the river abated, around mid September, Guzman's army crossed the Fuerte and travelled for several days up the Arroyo de los Alamos, finally reaching Teocomo. To the Spaniards surprise, Teocomo had been abandoned. According to Guzman (Hedrick and Riley 1976: 22), "a short while past it [Teocomo] had risen in rebellion". This statement may imply that the inhabitants of Teocomo had learned of the Spaniards approach and fled, rather than pay homage. One Indian was captured near the town, however, who aroused Guzman's interest in Mayomo. With the Indian captive serving as a guide, Guzman's army apparently continued north up the Alamos Arroyo, subsequently turning to the northwest, finally reaching Mayomo and the juncture of the Rio Mayo and the Arroyo de los Cedros²³. The Spaniards reportedly reached the Mayo river "in secrecy", and were able to take the village of Mayomo by surprise. After the village was captured,

Guzman despatched scouting parties that returned with news that native settlements with abundant maize were to be found at intervals along both banks of the Rio Mayo. According to the Second Anonymous Reporter, the river was less heavily populated than the province of Cinaloa, but still had a substantial population. The natives reportedly had the same language, food, and customs as the Cinaloa Indians (Hedrick and Riley 1976: 26).

Guzman's army remained at Mayomo for five days. During this time several inhabitants of the village informed the Spaniards of another larger river and of a town called Nebame, several days distant. Still hoping to learn of the whereabouts of the Seven Cities, Guzman took possession of the Rio Mayo and travelled 8 leagues or so up the Arroyo de los Cedros. The expedition subsequently turned to the northwest, and travelled an additional 10 or 12 leagues to Yaquimi, a small village with some 30 mat houses on the Rio Yaqui²⁴. Apparently the inhabitants of Yaquimi had learned of the army's advance and had fled to a nearby plain, where they were joined by other Yaqui from further downstream. Guzman quickly confronted the natives, who reportedly were led by a cacique, "wearing a black cloak like a scapulary decorated with ornately-worked pearl shells in addition to many small figures of dogs, birds, and deer among other things" (Hedrick and Riley 1976: 47). The cacique drew a line on the ground telling the Spaniards not to cross it. Seeing the Indians were still organizing their ranks, Guzman quickly responded with cavalry charges and gunfire. The natives were promptly dispersed, but not before several Spaniards and many of their horses were seriously wounded. In the first of what were to be many historical references to the Yaqui's military prowess (e.g. AGN 1610a; Perez de Ribas 1944: II, 64-65), the Second Anonymous Reporter noted that he had never

seen Indians fight as bravely and as well as those of Yaquimi (Hedrick and Riley 1976: 48).

After the enemy had been routed, Guzman retired to the village of Yaquimi, where his army spent the next seventeen days attending to its wounds. During this time Guzman was visited by an elderly Yaqui who expressed interest in peace, and who brought three small clubs, "in the heads of which were set turquoises" (Hedrick and Riley 1976: 25). Apparently while the army recuperated Guzman also sent several scouting parties down river to reconnoiter. As Guzman correctly noted, the Yaqui was the largest river seen by the Spaniards (Hedrick and Riley 1976: 25). According to the Second Anonymous Reporter, the river was well populated and had towns that were similar to those among the Cinaloa and the Mayo Indians, although larger and reflecting a "higher standard" (Hedrick and Riley 1976: 49).

After resting at Yaquimi, Guzman's army set out in search of Nebame, taking with them as a guide one of the Yaqui Indians who had been captured during the recent battle. Nebame was reached after travelling some 8 leagues up river, and apparently was a Pima Bajo settlement near Buenavista²⁵. Much to the Spaniards dismay, Nebame recently had been destroyed, reportedly by "the Indians of Yaquimi, who had waged large-scale war there"²⁶ (Hedrick and Riley 1976: 49). Guzman subsequently sent a scouting party further up river that returned after encountering a narrow pass in the mountains that blocked the Spaniards advance. At this point, Guzman decided to retrace his steps and search for a road north that followed the coast. As the army began marching south, Guzman had 8 cavalymen follow the course of the Yaqui downstream. The scouting party apparently travelled as far as the coast, but was unable to find a trail or

way around the Bacatete Mountains. The reconnaissance then rejoined the remainder of the army at Yaquimi (Hedrick and Riley 1976: 49-50). Here, Guzman decided to forgo the search for the Seven Cities and the expedition began the long journey back to the Villa of San Miguel. The trek back was largely uneventful, except for the discovery near the mouth of the Rio Fuerte of the remains of a ship that had been sent by Cortes to explore the northwest coast²⁷.

The aboriginal culture of the Cahita and their neighbors. Although Guzman's narrative and the account of the Second Anonymous are informative, both reports are largely impressionistic. In the absence of archaeological data, the accounts of Guzman's entrada must be supplemented with later historical observations, particularly the writings of the Jesuits. This approach to reconstructing aboriginal culture in northern Sinaloa and southern Sonora is not without risks, particularly as the missionaries observations often pertain to behaviors and beliefs that were altered during epidemics that preceded missionization.

As was the case further to the south, the aboriginal population of northern Sinaloa and southern-most Sonora was concentrated in villages and towns with a coastal or riverine orientation. Although Guzman and the Second Anonymous Reporter said very little about the size of the Cahita population, as late as 1594, Fathers Tapia and Perez reported that there were over 100,000 natives living in pueblos and permanent villages along the banks of the Mocorito, Sinaloa, Fuerte, Mayo, and Yaqui Rivers (AGN 1593; Shiels 1934: 109-111). The accounts of Diego de Guzman's *entrada* as well as later historical materials (e.g. Hammond and Rey 1928: 84, 257; Perez de Ribas I, 281) indicate most settlements ranged in size from hamlets or small

villages with less than 100 houses (e.g. Cinume, Petatlan) on up through villages or towns with well over 500 dwellings. There is also some evidence that near the mouth of the Rio Yaqui and perhaps the Rio Mayo and Rio Fuerte, thousands of people lived in contiguous or near-contiguous villages and towns. At the time of missionization, Perez de Ribas (HHB 1617) noted, for example, that there were some 16,000 Yaqui living in 12 pueblos along a 14 league (@36 miles) stretch of the Yaqui river, and that most of these people were in pueblos on an "island" (river delta) at the mouth of the river²⁸.

From the Petatlan River, or "place of mats", as far north as the Rio Yaqui, native settlements generally consisted of round structures with domed shaped roofs, constructed of reeds and reed matting²⁹ (e.g. Hammond and Rey 1928: 84; Hedrick and Riley 1976: 39). Despite problems of flooding, as suggested in part by Diego de Guzman's reference to finding Petatlan inundated (Hedrick and Riley 1976: 17), the Cahita and their neighbors apparently did not build their settlements or houses on earth platforms, as often was the case in central and southern Sinaloa. However, the Cahita — like their neighbors to the south — built a ramada next to their dwellings where cooking, sleeping, and most other daily activities took place, weather permitting³⁰ (Beals 1943: 21). Presumably, each Cahita village or town also had a **batei**, a prepared plaza that was used, according to the Jesuits (e.g. HHB 1633; Perez de Ribas 1944: I, 137), to play what was essentially a modified version of **Tlachtli**, the Mesoamerican ball game (c.f. Soustelle 1961: 159-160). The Jesuit materials also indicate that the Cahita built temporary ceremonial structures that appear to have functioned in a manner similar to kivas among the Pueblos, being used, for example, to initiate male children

into kinship groups³¹ (Beals 1943: 66-68). Obregon also noted that some Cahita villages (e.g. Ocoroni) were protected by a palisade of heavy timbers and were near what appear to have been defensive retreats or *trincheras* (Hammond and Rey 1928: 84-85).

Although native productive and organizational strategies were not discussed to any great extent by either Diego de Guzman or the Second Anonymous Reporter, later explorers and the Jesuits commented on the great success with which the Cahita and their neighbors secured food and other necessities. With respect to agriculture, Guzman and his companion noted only in passing that they saw many planted fields where melons, maize, and beans were presumably cultivated, as suggested by the explorer's reference to all three being customarily eaten (e.g. Hedrick and Riley 1976: 19, 20, 23, 30, 31, 51). As Beals (1943: 10) has noted, the Cahita area is ideal for growing maize, having not only some of the most fertile soil in Mexico, but also a climate characterized by long periods of relatively high humidity, particularly during the summer growing season. Besides maize, beans, and squash, the Cahita cultivated tobacco and cotton (AGN 1593; Beals 1943: 10), using a simple but highly productive form of slash and burn agriculture that was employed by native populations as far south as the Rio Santiago (e.g. Tello 1891: 158). During the dry season, tracts of land adjoining each of the major rivers in northern Sinaloa and southern Sonora were cleared of undesirable trees and shrubs, principally by girdling and then burning the dead and unwanted vegetation. After the winter and summer rains caused the rivers to overflow their banks, inundating the prepared tracts, crops were sown with a digging stick. With proper weeding and protection from predators, crops matured within three months, frequently yielding 100 bushels

for every bushel sown (Beals 1943: 10-11). According to Perez de Ribas (1944: II, 64), among groups such as the Yaqui it was necessary to harvest only one crop a year, at the end of June, although to double crop posed no problem. Indeed, the semi-annual or more frequent flooding of rivers in northern Sinaloa and southern Sonora, and the year-long growing season, made it possible to produce three crops a year. Significantly, with the periodic flooding of rivers and the deposition of silt, repeated plantings occurred without fear of depleting the soil. In the foothills and away from the rivers, **temporales** also were successfully employed by the Cahita and their neighbors (Beals 1943: 10-12).

The aboriginal population of northern Sinaloa and southern Sonora enjoyed not only an abundance of food from agriculture, but also fish and a variety of other marine and riverine resources. This point was indirectly acknowledged by the Second Anonymous Reporter, who noted the abundance of fish in the rivers of the region (Hedrick and Riley 1976: 52). From later explorers (e.g. Hammond and Rey 1928: 87, 102, 257-258), and particularly the Jesuits (e.g. Perez de Ribas 1944: II, 64, 123), we know that fishing and the harvesting of clams, mussels, and other shellfish were important and highly rewarding activities among the Cahita and their coastal neighbors. Fishing reportedly was carried out by individuals as well as large groups using nets and cane weirs and traps. According to Perez de Ribas (1944: II, 123), it was not uncommon for native fishermen living near the coast to return within two hours with over 1000 pounds of fish. However, to insure bountiful harvests, the Cahita and the Guasave had a sophisticated system of rituals and beliefs. Father Juan Varela (AGN 1628), in an apparent reference to the Guasave, noted, for example, that the natives had ritual proscriptions

against widowers, grave diggers, and spouses of menstruating women participating in fishing expeditions. The Cahita apparently had similar proscriptions and also recognized supernaturals to whom sacrifices were made to insure good weather and successful harvests of fish and other marine resources (Beals 1943: 19; Crumrine and Crumrine 1967).

Besides foodstuffs and various items of material culture that were secured from agriculture or the sea, there were a wide variety of wild plants that were gathered as well as various types of game that were hunted by the Cahita and their neighbors (Beals 1943: 13-18). Some indication of native skill and reliance on hunting was offered by the Second Anonymous Reporter, who noted that a few Cinaloa Indians that were captured by the Spaniards "served so well as hunters, killing doves, turtledoves, hares, and other things with their bows, that they sustained our entire camp" (Hedrick and Riley 1976: 45). In the same account we are told that from the Sinaloa River as far as the Rio Yaqui, the natives spent considerable time hunting deer and other game, often travelling 7 or 8 leagues to hunt (Hedrick and Riley 1976: 51). Obregon (Hammond and Rey 1928: 259) also related how he observed a communal hunt involving 2000 Yaqui who surrounded a marsh, subsequently driving from it large quantities of deer, hares, rabbits, and quail of all kinds. Communal hunts of this kind apparently were common among other Cahita groups as well (Beals 1943: 14).

The historical record, including the impressionistic accounts from Guzman's *entrada* indicate that the aboriginal population of northern Sinaloa and southern Sonora was not constrained by a harsh or "marginal" environment. Given a relative abundance of food and other provisions, one would think that some surplus production was channeled into craft activities

and trade. Neither pursuit was discussed, however, by Guzman or the Second Anonymous Reporter, nor were they discussed at length by later explorers and the Jesuits. The impression one gets from the historical record is that craft specialization and trade were not conspicuous features of aboriginal culture in northern Sinaloa and southern-most Sonora³². This impression, however, may be a reflection of the explorer's brief exposure to aboriginal culture, and the fact that native economic systems were undermined by disease episodes prior to missionization. One of the few Jesuit references to craft specialization and trade is a statement in the ~~anua~~ of 1602 (AGN 1602: 130) relating how the Guasave acquired maize from interior pueblos in exchange for pottery, small [fishing?] nets, fish, and shrimp³³. Logic dictates that some Guasave and Cahita also exploited the rich salt deposits near the mouths of the Mayo and Yaqui rivers, as was the case following missionization (Beals 1943: 40; Treutlein 1949: 85). Salt as well as prepared fish were highly valued by interior groups in Sinaloa (e.g. Perez de Ribas 1944: I, 250) and, according to Beals (1943: 40), were exchanged for maize as well as feathers, cotton, and animals skins. Probably some Cahita and Guasave also specialized in collecting, working, and exchanging shell, coral, and pearls. While references to such specialists are lacking, the historical record is replete with references to beads, pendants, and other items of shell jewelry that were worn by the Cahita and neighboring peoples (e.g. Shiels 1934: 108, 110). Historical references to turquoise, including the Second Anonymous Reporter's (Hedrick and Riley 1976: 25) comments about its use among the Yaqui, also seem to indicate the Cahita were involved in exchange networks that extended as far north as the American Southwest³⁴. Finally, Beals (1943: 40) has pointed out that the term for slave in Cahita is

synonymous with "riches" (Buelna 1891: 237), suggesting perhaps that slave trading occurred aboriginally.

The accounts of Guzman's expedition as well as many later sources are vague or lack data on not only exchange, but also Cahita socio-political organization. In reconstructing this important dimension of native life, anthropologists have relied heavily on modern ethnographic data and on observations compiled by the Jesuits. Many of the latter denied that the Cahita had "true government". Still other Jesuits described Cahita socio-political organization in terms of egalitarian and politically independent communities that were led by **hechizeros** (wizards) and men who were respected because they had shown great courage during times of war (Beals 1943; Spicer 1979: 254; Spicer 1980). Although many anthropologists have accepted this characterization, there are a number of reasons for believing it does not pertain strictly to aboriginal culture.

Of particular importance is the fact that many Jesuits seem to have had a biased view of what constituted political organization. Like other Europeans of their time, the Jesuits frequently equated "true government" with monarchy³⁵. It is uncertain, therefore, whether the reported lack of Cahita socio-political organization was a direct result of the priests failure to find "Kings and Lords". Old World diseases and the practice of **encomienda**, both of which affected many Cahita before missionization, also undermined native socio-political organization. In August, 1592, a year after Fathers Tapia and Perez began working in Sinaloa, Tapia noted in a letter that a "large part of this province [Sinaloa] is in **encomienda** to the Spaniards, which was an important factor in that it kept them without a leader" (Shiels 1934: 133-134).

While many Jesuits spoke of a lack of political organization, others mentioned or alluded to what were clearly sophisticated organizations. Perez de Ribas, who was one of the first Jesuits to work among the Cahita, noted that at the time of mission contact each Yaqui rancheria contained groups of kinsman who were led by certain "**principales**", reportedly "those who had sons among them"³⁶ (HHB 1617). This statement suggests that the Yaqui were organized in terms of patrilineal descent groups. As Beals (1932: 118-119) has noted, there is evidence that other Cahita populations also were organized in terms of paternal kin groups, and that in some villages and towns kin groups resided in distinct **barrios**. Significantly, while some kin groups or lineage segments may have been politically independent, many seem to have been integrated into chiefdoms (Sahlins 1963), led by what were termed "principal chiefs". The latter figure prominently in many early Jesuit accounts of the Cahita, and invariably were described as representing numerous villages with thousands of inhabitants. During the initial Jesuit **entrada** to the Mayo, for example, Father Pedro Mendez noted that he was welcomed by the principal cacique and what were apparently fifteen lesser caciques, all of whom represented over 9,000 natives living in 7 pueblos and numerous additional rancherias (AGN 1614A; Dunne 1940: 147-148; Perez de Ribas 1944: II, 131). Early accounts of the Yaqui, before they were missionized, also mention 2 or 3 "principal chiefs" (Anabailutei, Conibomeai, Hinsemeai) that represented thousands of natives (AGN 1610; Perez de Ribas 1944: II, 66-83; Dunne 1940: 112-128, 148). Speaking of the Cahita or Sinaloa, in general, Perez de Ribas (1944: I, 133) noted that the principal chiefs alone decided matters of war and peace, and were like "heads and captains of families or rancherias". Perez de Ribas went on to note that the principal

chiefs had the largest fields, which were cultivated with the assistance of their subordinates (Perez de Ribas 1944: I, 133)³⁷. In another context, Perez de Ribas (1944: I, 132) noted that it was primarily the **principales** and **cabezas** who enjoyed the benefits of polygamy³⁸. Among the Yaqui, and probably other Cahita groups as well, the **principales** and their wives also enjoyed differential access to material possessions such as cotton mantas (Perez de Ribas II, 65-66). Finally, Perez de Ribas noted that the "principal chiefs" acquired their positions not so much through inheritance, but by displaying great valor in war, by having many sons, grandsons, and other relatives, and occasionally, by being effective preachers³⁹. This characterization of the bases of power, particularly the apparent decline in the importance of hereditary transmission of office, is precisely what you would expect following the introduction of Old World diseases (c.f. Codere 1950: 125).

In sum, there is good reason to believe that, aboriginally, the Cahita were more than a collection of politically independent and egalitarian **rancherías**. Indeed, the existence of some overarching political organization is evidenced by the large armies that groups such as the Yaqui were able to field in battles with the Spaniards (AGN 1610a; Perez de Ribas 1944: II, 66-67). These armies, numbering well into the thousands, were organized into companies, and were led by the principal chief and lesser caciques who wore distinctive and elaborately decorated blue cotton capes (Hedrick and Riley 1976: 47; Perez de Ribas 1944: I, 131). As Beals (1943) has suggested, the Cahita probably had a military society that cross-cut **rancherías** and villages. Probably each lineage or clan furnished one or more companies and "captains" that acted in concert to defend or extend the interests of

individual chiefdoms. As the explorers and later the missionaries noted, the Cahita and their neighbors were involved in almost chronic warfare during the protohistoric period. Although we know relative little about the causes of this warfare, presumably the Cahita, like their neighbors to the north (Hammond and Rey 1928: 161, 164; Nentvig 1980: 113; Perez de Ribas 1944: II: 126, 149), often fought over competing claims to lands containing valued resources such as salt, coral, or deer. Slave raiding also may have sparked many conflicts, as did "trivial" disputes over such things as the rules for playing games like **correr el palo**⁴⁰ (e.g. Perez de Ribas 1944: I: 245-246).

The explorers' relative silence regarding native socio-political organization also extended to native religious beliefs and practitioners. The Second Anonymous Reporter noted only that the Cahita practiced sun worship and did not sacrifice or eat human flesh (Hedrick and Riley 1974: 39). Although the later Jesuit materials are replete with references to the dreaded **hechizeros** and various native religious beliefs that were suppressed, few subjects were treated so subjectively as native religious systems. As best we can determine, the Cahita conceived of the brushland and monte ("**Huya Aniya**") in which they acted out their lives as being richly imbued with supernaturals (Spicer 1980: 65-67). Knowledge of these spirits was acquired through dreams and visions, and frequently took the form of guardian spirits, usually animals, that instructed the individual in various magical rites for controlling one's destiny or that of others. Although all individuals apparently were privy to these spirits, the Jesuits implied that certain individuals, the **hechizeros** or wizards, "conversed regularly with the devil", acquiring knowledge of how to make what was essentially a "medicine bundle", and learning sleight of hand, curing by blowing and sucking, and

other powers that frequently were inherited. The **hechizeros** also were recognized for having a special power to cause illness or bring misfortune on others, and were thus, more like sorcerers than shamans (Beals 1943: 57-71).

The belief in the spirit world of the "Huya Aniya" and the practice of sorcery apparently constituted only one dimension of Cahita religious beliefs and practices. As Beals (1943: 58) has noted, the Cahita also had a pantheon of deities, many or most of whom may have originated among the Totorame or Tahue, and ultimately, in Mesoamerica⁴¹. Besides the sun and moon, which were worshipped throughout much of the Greater Southwest, the Cahita and their neighbors worshipped deities that governed warfare, agriculture, carnal delights, and life and death, itself (e.g. Perez de Ribas 1944: I, 333). Reportedly, idols of stone and wood were made of these deities and frequently were kept in secluded areas outside many villages. The idols were attended to by what appears to have been a quasi-priesthood ("only the most famous hechizeros") that conversed with the deities, and that secured appropriate offerings from fellow villagers to placate or enlist the support of the Gods (Beals 1943: 58-59; Perez de Ribas 1944: I, 333). The Jesuits often spoke of native "priests" that also were caciques (Beals 1943: 61), perhaps alluding to the existence of a priestly hierarchy as among the Zuni (Beals 1943: 69).

In summary, then, the accounts of Diego de Guzman's **entrada** and the later writings of the Jesuits suggest that, aboriginally, northern Sinaloa and southern-most Sonora were well populated with sophisticated economic, socio-political and religious systems. As subsequent Spanish explorers noted, this characterization obtained in many other areas of the Greater Southwest.

The Journey of Alvar Nunez Cabeza de Vaca

During the fall of 1533, while Diego de Guzman was searching for the famed Seven Cities, the inhabitants of Culiacan took advantage of the absence of a good number of their oppressors and rebelled⁴². Over a period of several months, many Spaniards were killed at the Villa of San Miguel as well as in the province of Chametla, where the uprising spread. By the time Guzman's expedition returned to San Miguel, around Christmas, 1533, most of the rebels apparently had burned their villages and retired to the mountains to the east. This action made it difficult to exact retribution, and more importantly, it deprived the residents of San Miguel of their principal source of tribute and slaves. To offset this loss, many Spaniards followed-up Diego de Guzman's success and began plundering native settlements north of the Rio Culiacan. These illegal raids continued for many years⁴³, and were first brought to the attention of Spanish officials in Mexico City by Alvar Nunez Cabeza de Vaca and three fellow survivors of the ill-fated Narvaez expedition to Florida. In the spring of 1536 — some eight years after their remarkable journey began in Florida — the 3 Spaniards and a black slave, Esteban, crossed northwest Mexico, observing firsthand the destruction wrought by their compatriots in southern-most Sonora and northern Sinaloa. Significantly, the reports that were compiled by Cabeza de Vaca and two of his companions regarding their odyssey tell not only of native communities that were being destroyed as a result of slave raiding, but of native peoples that were as yet untouched by the Spaniard or his diseases. The reports are particularly useful in reconstructing aboriginal culture along the lower Rio Grande, in northern Chihuahua, and in central and eastern Sonora.

The journey of Cabeza de Vaca and his companions is recounted in

Cabeza de Vaca's *Nafragios* (1944) and in what is known as the "Joint Report"⁴⁴. The latter recently has been published in English (Hedrick and Riley 1974) and first appeared in Book 35 of Gonzalo Oviedo y Valdes' *Historia General Y Natural de las Indias* (1853). Oviedo y Valdes' reportedly copied a letter that was sent to the *Audiencia* of Santo Domingo by Cabeza de Vaca, Andres Dorantes, and Alonzo del Castillo del Maldonado — the three Spaniards who accompanied Esteban (Hedrick and Riley 1974: 6, 70). Not surprisingly, in recounting their journey across the North American continent, Cabeza de Vaca and his companions often failed to indicate their precise travel route. This imprecision has led to numerous different interpretations of Cabeza de Vaca's itinerary. In the discussion that follows, Hallenbeck (1940) and Sauer's (1932) reconstructions will be closely followed. Both authors' analyses are not only consistent with the explorers' accounts, but are supported by recent archaeological data from the Sonora Valley. The archaeological data have shed light on the location of the "land of permanent houses" and "Corazones", both of which figure prominently in the accounts of not only the wanderings of Cabeza de Vaca, but chronicles of subsequent expeditions led by Coronado (1540-42) and Francisco de Ibarra (1563-65) (see Reff 1981).

Cabeza de Vaca and his companions began the last leg of their journey across North America in November or December, 1535⁴⁵. At this time, the three Spaniards and Esteban were led by Indian guides from the Pecos River in western Texas to a group of well populated villages with permanent houses along the lower Rio Grande, apparently about half way between La Junta and El Paso⁴⁶. Later historical materials indicate this region was occupied by the Jumano, a semi-sedentary people who spent

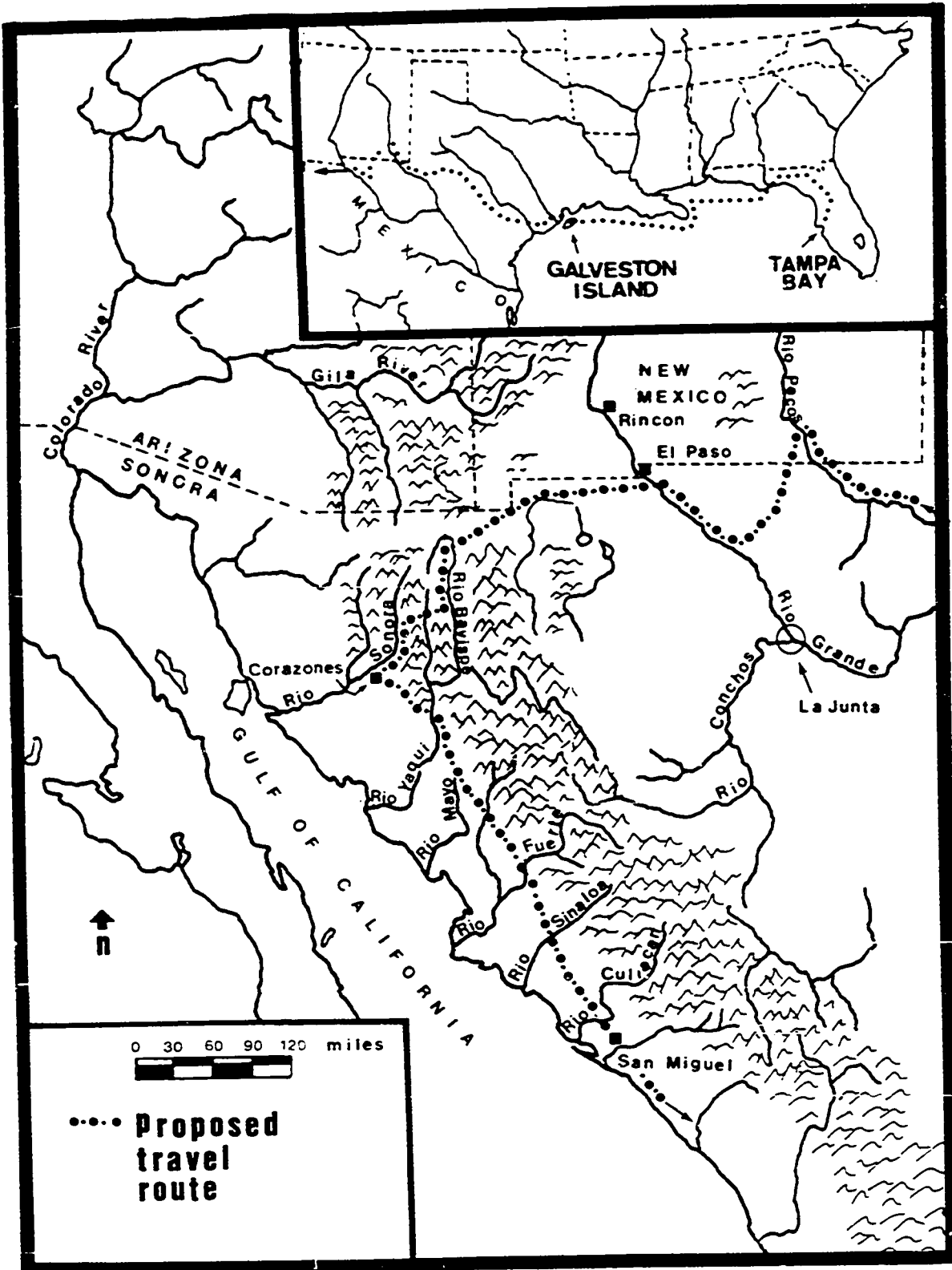


Fig. 8. POSTULATED ROUTE OF ALVAR NUNEZ CABEZA DE VACA

considerable time hunting bison and attending trade fairs out on the southern Plains (Kelley 1952a, 1955). The Jumano welcomed the 3 Spaniards and Esteban by giving them many bison hides that reportedly were acquired during hunting expeditions that involved travelling as much as 50 leagues up the Rio Grande (Cabeza de Vaca (1944: 60). For this reason as well as because of other evidence of a heavy involvement with bison hunting, the Spaniards called the natives the "people of the cows" (Cabeza de Vaca 1944: 60). The Jumano did not rely strictly on hunting, however, and reportedly cultivated good amounts of beans and squash. When the Spaniards asked why the natives did not cultivate maize, they were told that there had not been sufficient rain during the past two years. The natives further explained that what little maize they had was acquired in the direction of the sunset, apparently from the Opata of northeastern Sonora (Cabeza de Vaca 1944: 60; Hedrick and Riley 1974: 57-61).

The three Spaniards and Esteban spent several days in the villages of the Jumano, during which time inquiries were made about the maize country to the west. When asked how best to reach this land, the Jumano indicated that the best route involved an initial seventeen days travel to the north, through country that yielded little food except some dried fruit called *chacan*⁴⁷. The Jumano, at the same time, warned the Christians that this trail was dangerous, noting that it passed through the lands of a people who spoke their language, but who were their enemies. The latter, it was said, would not be able to provide food, although they would give the Christians many cotton mantas, hides, and other gifts (Cabeza de Vaca 1944: 60). These enemies of the Jumano were most likely the semi-sedentary Suma, who occupied northern Chihuahua and northeastern Sonora (Griffen 1979; Sauer

1934). Like the Jumano, who traded extensively with their sedentary neighbors at La Junta, the Suma had a symbiotic relationship with the Opata of northern Sonora. It was apparently the Opata who supplied the Suma with the cotton mantas of which the Jumano spoke⁴⁸.

After two days of contemplating how best to reach the maize country, Cabeza de Vaca and his companions departed the Jumano, apparently ascending the Rio Grande as far as the El Paso area⁴⁹. Here the river was crossed and Cabeza de Vaca and his party were led across the barren and inhospitable New Mexico-Chihuahua border region⁵⁰. At the Pulpit or Carretas Pass the Christians found some Indians who had many rabbits and a little corn, and who for four months of the year ate only wild resources (*polvos de pajas*). After a brief sojourn among these people, who may have been Janos, Cabeza de Vaca and his party were escorted to the first villages in the "land of permanent houses" (Cabeza de Vaca 1944: 61; Hedrick and Riley 1974: 60-61), apparently near Batepito, along the Rio Bavispe. Cabeza de Vaca and his party were now among the Opata. The latter reportedly gave the explorers large amounts of corn, beans, squash and numerous cotton mantas. The Spaniards, in turn, gave the mantas and food to their guides who joyfully returned to their villages along the Rio Grande (Cabeza de Vaca 1944: 61; Hedrick and Riley 1974: 61).

The four survivors of the Narvaez expedition spent what seems to have been several days among the Opata along the headwaters of the Rio Bavispe. Subsequently, Cabeza de Vaca and his party spent a month or so travelling down through Sonora⁵¹. Unfortunately, neither Cabeza de Vaca nor the authors of the Joint Report provided much in the way of details with respect to the route followed. Only the last segment of the journey, along

the middle Rio Sonora, is readily inferable (Sauer 1932; Reff 1981). Before and after they reached the Rio Sonora, the Christians saw a great deal that led them to praise the Opata, as did later explorers and missionaries. Specifically, Cabeza de Vaca and his companions reported that they travelled for more than 80 or 100 leagues, and continually found permanent houses. In keeping with recent archaeological evidence (Reff 1981), the Spaniards noted that the natives lived in small, flat roofed houses of adobe and others built of cane. Everywhere the Spaniards went they found an abundance of food. Reportedly the natives planted 3 crops a year and hunted 3 different types of deer. At numerous villages and towns the Christians were given large quantities of food as well as coral from the south sea, and "many fine turquoises". In an apparent reference to Zuni, the Opata of the Rio Sonora Valley told Cabeza de Vaca and his companions that they acquired their precious stones at some large and densely populated pueblos in some high mountains to the north, where they traded parrot feathers and bird plumes. As they travelled down through the Opatería the Spaniards and Esteban were also given many cotton blankets, "better [made] than those in New Spain". Cabeza de Vaca went on to note that the women were particularly well dressed in garments of deerskin and cotton, and were "treated with more respect than in any part of the Indies we had seen" (Cabeza de Vaca 1944: 61-63; Hedrick and Riley 1976: 61-63).

Toward the end of their journey in the land of permanent houses, Cabeza de Vaca and his party reportedly "left the mountains", going to a settlement on the plains near the coast. This settlement was termed "Corazones", because its inhabitants gave the Spaniards more than 600 prepared deer hearts (Cabeza de Vaca 1944: 63; Hedrick and Riley 1974:

62-63). As Sauer (1932: 17) has convincingly argued, Corazones was a Pima Bajo settlement along the lower Rio Sonora, near the modern settlement of la Puerta del Sol⁵². Like their Opata neighbors upstream, the inhabitants of Corazones were successful agriculturalists who cultivated and wove cotton. In an apparent reference to Pima communities in northwestern Sonora and southern Arizona, the inhabitants of Corazones told Esteban that, "all along that south coast towards the north" there were people who lived in large houses who had an abundance of food, cotton, and turquoise (Hedrick and Riley 1974: 63). While at Corazones, Cabeza de Vaca and his party also learned of other Indians who lived along the coast, some of whom reportedly travelled 12 or 15 leagues inland to meet the Christians (Hedrick and Riley 1974: 62-64). These Indians were most likely Seri⁵³, as later sources indicate they were in the habit of journeying inland to trade with their Pima and Opata neighbors (e.g. Perez de Ribas 1944: II, 148; AGN 1678: 257). In keeping with archaeological and historical evidence of Seri subsistence patterns (Bowen 1976a, 1979), Cabeza de Vaca noted that the natives from the coast relied on wild plants and fish that were taken from the sea on rafts (Cabeza de Vaca 1944: 63).

After tarrying at Corazones for several days, Cabeza de Vaca and his party continued south, reportedly following the coast line ten or twelve leagues inland (Hedrick and Riley 1974: 65). Some 30 leagues from Corazones, the 4 Christians and their escort came to a ford of what was apparently the Rio Yaqui, perhaps near Sayopa or further downstream near Cumuripa⁵⁴. Because the river was at flood stage, the weary travellers were forced to wait 15 days for the river to subside. During this time, one of the Spaniards happened to notice an Indian who was wearing a buckle and

horseshoe nail around his neck. The Spaniards immediately inquired about the items and were told that some bearded men on horses had reached the river, lancing two Indians during an apparent slave raid (Cabeza de Vaca 1944: 63; Hedrick and Riley 1974: 64). Although upset about the raids and their impact on the natives, the four Christians were elated to learn of what were apparently other Spaniards. Thus, once the Yaqui subsided, Cabeza de Vaca and his party crossed the river, and hurried south.

Much of the route that was followed by Cabeza de Vaca and his companions after crossing the Rio Yaqui is a matter of conjecture. The would-be explorers made only brief comments about the route, indicating that it followed the foothills of southern-most Sonora and northern Sinaloa (Sauer 1932). En route the Spaniards were appalled at the visible signs of Spanish slave-raiding, including abandoned and destroyed villages and large numbers of starving people, many of whom adopted a migratory lifestyle or hid in the mountains to avoid capture (Cabeza de Vaca (1944: 64; Hedrick and Riley 1974: 65-67). Some 40 leagues from the Villa of San Miguel, Cabeza de Vaca and his party reached a town in the mountains above the Rio Fuerte where they learned that some Spaniards were at that very moment in the vicinity looking for Indians to enslave. It was now March, 1536, and Cabeza de Vaca pushed on ahead of his companions, encountering a raiding party that was encamped along what appears to have been the Ocoroni River (Sauer 1932: 20). After admonishing its surprised leader, Diego de Alcaraz, for the Spaniards' brutal behavior and wanton disregard of native life, Cabeza de Vaca sent word to his companions of his chance meeting. Subsequently, Alcaraz furnished guides who led the Christians and their Indian escort south to the Rio Pericos. Here they were greeted by the Alcalde Mayor of San

Miguel, Melchor Diaz. Impressed with their large Indian escort, Diaz asked Cabeza de Vaca to negotiate a peace with the leaders of the rebellion that began several years earlier, in 1533. Cabeza de Vaca spoke with the rebels, convincing many to return to their villages in exchange for a promise that they would not be exploited or mistreated by the residents of San Miguel. Once this task was accomplished, the four survivors of the Narvaez expedition continued southward, eventually reaching Mexico City in July, 1536 (Hallenbeck 1940; Hedrick and Riley 1974: 65-70; Cabeza de Vaca 1944: 64-70; Sauer 1932).

The aboriginal culture of the Jumano, Opata, and Pima Bajo. Like many of the exploration chronicles, Cabeza de Vaca's *Naufragios* and the Joint Report provide a valuable first glimpse of native life in several areas of the Greater Southwest. This is true with respect to the Rio Grande above La Junta, whence the four survivors of the Narvaez expedition began their trek across northwest Mexico. As noted in the previous chapter, by A.D. 1450, deleterious climatic shifts are thought to have led to the abandonment of all or most El Paso Phase and La Junta Focus settlements above the juncture of the Rio Grande and the Rio Conchos (Kelley 1952a; Schaafsma 1979; Wiseman and Beckett 1979). Although the would-be explorers reported that drought and food shortages were in fact a problem in western Texas and along the lower Rio Grande, Cabeza de Vaca (1944: 60) nevertheless reported that the lands of the "people of the cows" were well populated ("Es tierra muy poblada"). Cabeza de Vaca also indicated that, despite lengthy sojourns to hunt bison, the Jumano lived in villages with permanent houses and were successful agriculturalists (Cabeza de Vaca 1944: 61). The Joint Report also states that during their trek up the Rio Grande the Christians received many

bison robes and each night found huts to sleep in (Hedrick and Riley 1974: 60). This statement also implies that the lower Rio Grande was lined at intervals with native settlements⁵⁵.

The explorers' statements clearly are at odds with the inference that the Rio Grande above La Junta was wholly or largely abandoned prior to the Conquest. As late as 1582-83, Espejo reported there were many pueblos and rancherías above and below the juncture of the Rio Grande and the Rio Conchos (Hammond and Rey 1929: 63). It is not clear, however, what relationship these Jumano settlements bore to the prehistoric El Paso Phase and La Junta Focus occupation of the River. Unfortunately, the Jumano and their neighbors (Suma, Janos, Jocomes, Manso) were assimilated by the Apaches at an early date, and we know little about their origins or culture in general (Forbes 1957, 1960; Gerald 1973; Griffen 1983; Naylor 1981). Some researchers have suggested that the Jumano were a Southern Plains Culture that settled along the lower Rio Grande during the late prehistoric period⁵⁶, presumably while the La Junta Focus and El Paso Phase folk dwindled in numbers or emigrated to points unknown. Kelley (1952: 276-278) has noted, however, that the Jumano may have been an *in situ* development out of what has been defined archaeologically as the the Livermore Focus. This latter possibility is supported indirectly by evidence that the Jumano spoke the same language (Griffen 1979: 42; Sauer 1934) and had close ties to the Patarabueyes and other historic populations that are known to have occupied the La Junta area for centuries before and after the Conquest. Although Cabeza de Vaca and his party passed to the north of La Junta, in 1582-83, there reportedly were some 10,000 natives living in and about the juncture of the Rio Conchos and Rio Grande⁵⁷ (Bolton 1916: 172). The inhabitants of

the La Junta were fully sedentary agriculturalists who lived in numerous pueblos and *rancherías*, and traded extensively with their more nomadic, bison hunting kin to the north (Kelley 1952, 1952a, 1953).

Whatever the origins of the Jumano may have been, it is clear that the Lower Rio Grande had a sizeable population during the early historic period. If, as suggested, Cabeza de Vaca and his companions turned west after ascending the Rio Grande to El Paso, then the would-be explorers also were in a position to comment on the size and complexity of native populations in northern Chihuahua and perhaps southern New Mexico. As we have seen, both areas are thought to have been largely abandoned by A.D. 1450, following the collapse of the Casas Grandes and Animas Phase cultures. Significantly, neither Cabeza de Vaca nor his companions mentioned encountering native peoples or settlements during their trek across the Chihuahua-New Mexico border region. The explorer's silence would seem to support the idea that Casas Grandes and its many satellite communities in northern Chihuahua were abandoned during the fourteenth century, as DiPeso (1974: II) has suggested. Actually, in 1565, an expedition led by Francisco de Ibarra found Paquime and many lesser settlements in ruins (Hammond and Rey 1928: 196-208). Obregon's narrative indicates that the once populous Casas Grandes sovereignty was inhabited by small bands of "Querecho", or what were apparently Suma Indians. The Suma alluded to Cabeza de Vaca and his companions having passed through the area many years earlier, and also told Ibarra, "by signs", that the former inhabitants of Paquime "had been forced to move away on account of the war waged on them by their enemies who came from the other side of the mountains" (Hammond and Rey 1928: 207-208), apparently from the Rio Bavispe.

The relative silence of Cabeza de Vaca and his companions and the poignant comments of Obregon indicate that Casas Grandes and its many satellite communities in northern Chihuahua were in fact abandoned prior to the Conquest. Although Ibarra was told by the Suma that Paquime was abandoned as a result of raids by what were apparently Opata from the Rio Bavispe⁵⁸, we know from the archaeological record that Paquime's collapse was preceded by an 80 year recession. During the Diablo Phase (A.D. 1260-1340) Paquime apparently lost much of its market for ceremonial and luxury goods and major areas of the city degenerated into slums (DiPeso 1974: II, 319-320). Interestingly, while "revenues" declined and large quantities of finished goods accumulated in Paquime's warehouses, communities beyond the borders of the Casas Grandes province began producing items that were once Paquime's largest exports⁵⁹. At numerous sites in southern Arizona and in northeastern Sonora, for example, numerous different types of polychrome pottery were produced after A.D. 1200 that originated or apparently were inspired by Paquime (e.g. Ramos, Gila, Santa Cruz, and Babicomari Polychromes) (DiPeso 1951: 213; 1958: 87; Sauer and Brand 1932: 111). After A.D. 1200, the Trincheras folk of northwestern Sonora also became the prime source of finished and unfinished shell in the Greater Southwest (c.f. DiPeso 1956: 83; Riley 1976). It is conceivable, therefore, that Paquime's demise had less to do with Opata invaders or climatic shifts and was more a consequence of its failure to stifle new and superior competitors of its own making (Pailes and Reff 1985). Because of their close economic ties to Paquime, the Animas and El Paso Phases and the La Junta Focus also may have undergone radical changes in the wake of Paquime's failure to maintain its preeminence as a mercantile center. As was the case in northern

Chihuahua, these changes probably involved site abandonment and out-migration. Perhaps those who remained behind found it expedient or necessary to adopt simple horticulture and a hunting and gathering lifestyle, as practiced by the Suma and other historic inhabitants of the Casas Grandes province.

Unfortunately, neither Cabeza de Vaca's account or the Joint Report provide the kind of data that are necessary to evaluate the foregoing model. Both narratives, however, do indicate that groups that once relied heavily on Paquime for luxury and ceremonial goods such as the Opata, or the "Rio Sonora Culture" as it is known archaeologically⁶⁰, were thriving in the sixteenth century. The explorer's observations regarding "the land of permanent houses" also pertain to a lesser extent to the Pima Bajo of east central Sonora.

As we have seen, the survivors of the Narvaez expedition noted that they travelled for 80 or 100 leagues in the "land of permanent houses", every 2 or 3 days reaching towns, and everywhere finding settlements well supplied with maize, beans, deer meat, and cotton mantas. The Joint Report also indicated that the explorers were accompanied by 1000 or 1500, and sometimes 3,000 natives (Cabeza de Vaca 1944: 61; Hedrick and Riley 1976: 61). Statements such as these give the impression that eastern Sonora from north to south was well populated. This inference is supported by recent archaeological evidence (Doolittle 1979; Pailes 1980; Reff 1981) as well as the accounts of expeditions led by Coronado (1540-41) and Ibarra (1564-65) (Hammond and Rey 1928: 164, 1940: 164, 250; O'Gorman 1967: I, 280-281). Unfortunately, while many chroniclers mentioned or alluded to central Sonora being well populated, the explorers failed for the most to estimate the size

of native "provinces" or settlements⁶¹. Sauer (1935: 29), employing a number of sources and means of interpolation, estimated the Opata and Pima Bajo numbered, aboriginally, around 60,000 and 25,000, respectively. Although these estimates have been deemed unduly large, based on what the Jesuit's reported in the mid or late 1600's (Hinton 1959: 12; Pennington 1980: 31; Spicer 1962: 99), Sauer's critics have overlooked or ignored evidence of the devastating impact of Old World diseases. As we shall see, by 1653, the Opata and Pima Bajo had lost well over half their population and, together, numbered only around 37,000 (AGN 1653a).

In reconstructing Opata and Pima Bajo population and culture, many researchers have concluded that both groups lived in small, dispersed **rancherías** with upwards of 20 or 30 houses (Pennington 1980: 64; Spicer 1962: 91, 99). Although the Jesuits frequently referred to the Opata and Pima Bajo as **ranchería** peoples (e.g. AGN 1620: 254; 1628b: 345-348; Perez de Ribas 1896: II, 488, 1944: II, 179), early observers like Cabeza de Vaca and his companions mentioned or alluded to villages and towns, reportedly with houses of adobe and cane matting. Several Jesuits and the infamous Captain Hurdaide also reported that the Pima Bajo and Opata lived in large **rancherías** and towns prior to missionization (e.g. AGN 1614a: 188; Alegre 1959: 56; Salmeron 1966: 95). Recent archaeological evidence as well as the accounts of Coronado's and Ibarra's expedition further testify to native residence in large, nucleated settlements (Reff 1981). Obregon, for example, noted that "Senora" had towns with 100 and 200 terraced houses. Other towns like Cumupa (Cumpas) and Guaraspi (Arizpe) reportedly had 500 and 600 houses, respectively (Hammond and Rey 1928: 173-175). Obregon further noted that Guaraspi "had well planned streets" (Hammond and Rey 1928:

173), and in Cumupa he noted that the natives hung enemy scalps and other trophies "in the streets and prominent places" (Hammond and Rey 1928: 173-175). According to Obregon, the town of Oera, which apparently is to be identified with the Pima Bajo settlement of Onabas⁶², had 1000 "excellently grouped", flat-roofed houses (Hammond and Rey 1928: 160-161).

At many villages and towns in the "land of permanent houses" Cabeza de Vaca and his companions reportedly were given large amounts of food and cotton. Later explorers as well as the Jesuits also reported that the Opata and Pima Bajo were successful agriculturalists, cultivating a variety of crops, including corn, beans, several different types of squash, cotton, and tobacco (Hammond and Rey 1928: 164; 1940: 159, 164; Johnson 1950; Sauer 1932: 55). The historical record further indicates that many Opata and Pima Bajo communities employed canal irrigation (Hammond and Rey 1928: 159, 160, 174-175; Hammond and Rey 1940: 297; AGN 1614a: 188; AGN 1628b: 345-349; Perez de Ribas 1944: II, 149-150, 179). The Opata reportedly used diversion dams to channel river or stream water into a gravity fed network of post-reinforced⁶³ canals and ditches that brought water to their fields near the flood plain. As Father Nentvig (1980: 88) noted in the late 1700's, this type of irrigation was highly labor intensive and required frequent maintenance and reconstruction of dams and canals that were damaged or destroyed during heavy rains or floods. The practice of irrigation agriculture provided the Opata and Pima Bajo with bountiful food supplies. As Cabeza de Vaca (1944: 63) and later the Jesuits noted, the Opata harvested 2 or 3 crops a year of maize and beans. Until recently, the descendants of the Pima Bajo also double-cropped (Pennington 1980: 148-149). Father Joseph Och noted in the late 1700's that maize brought a hundredfold and sometimes a

thousand fold yield in Sonora (Treutlein 1965: 137-138). Cabeza de Vaca (1944: 61) and later the missionaries (e.g. Nentvig 1980: 68; Salmeron: 1966: 94-95; Treutlein 1949: 53; 1965: 68), also reported that the Opata grew cotton and were unsurpassed weavers, as evidenced by the fine garments of cotton worn by women of their nation (AGN 1628a, 1639a; Bamion 1955: 46-47; Cabeza de Vaca 1944: 62; Perez de Ribas 1944: II, 178-179).

Like most native peoples in the Greater Southwest, the Opata and Pima Bajo were not only agriculturalists, but also hunter-gatherers. Some plants like maguey (*Agave Yaquiana*) were collected to make intoxicating drinks (Johnson 1950; Pennington 1980: 185-187). Still other plants were collected for use as medicines (Kay 1977; Nentvig 1980: 43, 66; Pennington 1980: 262-282; Treutlein 1949: 60-78). Most wild resources such as Cactus fruits (pithaya, tuna), roots, wild chile (*chiltepin*), and mesquite beans added variety and important nutrients to the native diet (ACN 1702; Hammond and Rey 1928: 164; 1940: 250-251; Johnson 1950; Nentvig 1980; Pennington 1980). Similarly, from deer hunting the Opata and Pima Bajo obtained meat protein as well as leather for clothing (Johnson 1950; Pennington 1980). As Cabeza de Vaca (1944: 63) noted, there were 3 types of deer in Sonora, apparently including white-tailed deer, mule deer, and pronghorn antelope (Pennington 1980: 207). All three animals were hunted by individuals or groups using various techniques, including bow and arrow and deer-head disguises (AHH n.d.: 9, 12; Johnson 1950). Many lesser mammals, birds, and reptiles also were hunted using the bow and arrow, and some like the jack rabbit were hunted in community drives with sticks or light arrows (Johnson 1950). Cabeza de Vaca, Obregon, and later the Jesuits, also noted that the inhabitants of Sonora caught deer and fish that were stunned with various

toxic plants that were thrown into streams (Cabeza de Vaca 1944: 63; Hammond and Rey 1928: 172; Johnson 1950). Actually stupefaction was just one of many different techniques that were used by the Opata and Pima Bajo to secure fish. The latter as well as meat frequently were made into stews, to which alum or rock salt were added as condiments (Nentvig 1980: 113). As Cabeza de Vaca and his companions experience at Corazones suggests, deer hearts and other meat were preserved by jerking and sun drying (Treutlein 1949: 40).

While most Pima Bajo and Opata communities were largely self-sufficient, logic dictates that there were times when drought, fire, floods, or warfare led to shortages of maize, meat, hides, cotton, or other staples. To cope with these shortages as well as acquire scarcer resources like shell, feathers, salt, turquoise, and peyote, the Opata and Pima Bajo had far-reaching trade contacts⁶⁴. It is apparent from Cabeza de Vaca's (1944: 60) narrative, for instance, that the Opata of the upper Rio Bavispe traded maize and cotton blankets to the Jumano and Suma. The Concho apparently also travelled to northeastern Sonora to acquire cotton blankets, as Fray Zarate Salmeron (1966: 94-95) noted in ca. 1625. In 1678, Father Juan Ortiz Zapata (AGN 1678: 256) reported that some Suma and Concho were travelling to Huachinera, Bavispe, and Baserac to trade, while still other Suma and Jumano traded with the Opata of Tebideguatzi, Teuricatzi, and Cuchuta. Probably the Jumano, Suma, and Concho brought items such as bison robes and peyote which were exchanged for maize, cotton *mantas*, turquoise, and coral (see Hammond and Rey 1966: 76). As Cabeza de Vaca (1944: 59-60) noted, the Opata acquired turquoise from what appears to have been Zuni, in exchange for parrot plumes and feathers. The Opata also supplied Zuni with

coral (Salmeron 1966: 75), and apparently the Opata, in turn, acquired coral from the Seri. According to Perez de Ribas (1944: II, 148), the Seri each year travelled inland during the fall to exchange salt and other products of the sea for maize. Father Zapata (AGN 1678: 257) likewise noted that the Seri as well as the Pima Alto occasionally travelled to the Rio Sonora Valley to trade with the Opata, presumably bringing coral, salt, shell, and other resources that were scarce or absent in the Opateria. The Opata also may have relied on the Pima Bajo for parrot feathers and plumes. In his chronicle of the Ibarra expedition, Obregon noted that the inhabitants of Oera (Onabas) "have large numbers of parrots and eagles, great and small, in cages". Obregon went on to note that the people of Oera also had many slaves imprisoned in wooden stocks, which they exchanged for blankets, feathers, provisions, and salt (Hammond and Rey 1928: 161).

In their brief comments regarding the "land of the permanent houses", neither Cabeza de Vaca nor his companions spoke of native socio-political organization. On the basis of observations from the late seventeenth and the eighteenth and nineteenth centuries, researchers have concluded that, aboriginally, the Opata and Pima Bajo lived in largely egalitarian and politically independent *rancherias*, governed as it were by elders and war captains of demonstrated ability (Hinton 1983; Johnson 1950; Spicer 1962; 1950). There is considerable evidence, however, that the Opata and Pima Bajo had far more complex socio-political organizations. Indeed, many native communities in Sonora appear to have been organized into chiefdoms⁶⁵, similar to those that existed in the southeastern United States during the early historic period (Hudson 1976).

Chroniclers of the Coronado and Ibarra expeditions were the first to

allude to the existence of chiefdoms in Sonora, and did so with reference to "kingdoms" or "provinces" such as Senora, Suya, Guaraspi, and Oera (Hammond and Rey 1928; 1940). The explorer's accounts indicate that in Sonora, as in the Southeastern United States, individual chiefdoms or "provinces" often were coterminous with physiographically distinct river valley segments, and contained at least one large, nucleated settlement, flanked by numerous smaller villages (e.g. Hammond and Rey 1928: 174-175). Like their Southeastern counterparts, which frequently were surrounded by a palisade (Hudson 1976: 210-211), the lead towns of chiefdoms in Sonora were fortified or were near fortified retreats (*trincheras*) (e.g. Hammond and Rey 1928: 180-182; Perez de Ribas 1944: II, 163; Reff 1981). Recent archaeological fieldwork in the middle Sonora Valley indicates that Opata lead towns also had large, rectangular "court platform" structures that apparently served a variety of public functions (Pailes 1980; Reff 1981). Castaneda, who was with Coronado, may have referred to these structures when he noted that in the Senora Valley "the dignitaries of the pueblos stand on some terraces which they have for this purpose and remain there for one hour, calling like town criers, instructing the people in what they are to do..." (Hammond and Rey 1940: 250). Interestingly, present in many lead towns of chiefdoms in the Southeastern United States were mounds and "chunkey yards" that were similar in form and function to the "court-platform" structures recently unearthed in the Sonora Valley (c.f. Hudson 1976: 222, 295; Pailes 1980).

The chiefdom model suggested here is at odds with the traditional view of the Opata and Pima Bajo as having had a "loose community organization" centered about the bilateral family (e.g. Hinton 1983: 315). Like their Cahita neighbors to the south, the Opata and Pima Bajo

apparently were organized into clans and lineages that were undermined by Old World diseases prior to missionization. During the late 1600's, Bandelier spoke with a number of Opata who alluded to the former prevalence of totemic clans⁶⁶ (Lange and Riley 1970: 242, 247). The division of clans into patrilineal descent groups is further suggested by Perez de Ribas (1944: II, 227) comment that, having many sons, kinsman, and descendants was the foundation for political power in Sonora⁶⁷. There is reason to believe that lineages were also ranked or enjoyed differential access to and control of important resources. Recent archaeological evidence from the Sonora Valley suggests, for example, that lineages in each of the two lead towns in the middle section of the Valley had access to large areas of floodplain that were irrigated by natural springs or aquifers. By contrast, lineages or lineage segments in smaller villages and **rancherías** flanking the lead towns farmed bottom land that relied on water drawn from the river. Logic dictates that those who relied strictly on the river for water to irrigate their farm land suffered during times of drought, which are not uncommon in Sonora (Dumbier 1968). Lineages in the larger towns that farmed bottomland irrigated with spring water would not have suffered during droughts and, thus, would have enjoyed regular food surpluses. Interestingly, excavations and survey suggest that the two largest settlements in the valley were in fact focal points for the redistribution of foodstuffs and the acquisition of long distance exchange items (Pailes 1980; Reff 1981).

Although the Opata and Pima Bajo are thought to have lived in politically independent and largely acephalous communities, both Spanish explorers and early Jesuit observers spoke of native caciques or "**principales**" that wielded considerable political and military influence. Mention already

has been made of Castaneda's reference to "dignitaries" in the Senora Valley that instructed "the people in what they are to do", and who kept "royal eagles...as an emblem of power" (Hammond and Rey 1940: 232, 251). In 1618-19, some ten years before the Jesuits established their first permanent mission among the Opata, a group of caciques bearing a gift of 3 eagles visited Father Diego de Guzman along the lower Rio Yaqui. A letter in the *Anua* of 1620 (AGN 1620) relates that the Batuco caciques informed Guzman that they represented 100 **rancherias**, while another Opata cacique ("Gran Sisibotari") from the Rio Sahuaripa reportedly had some 70 **rancherias** under his dominion. In 1619, Perez de Ribas also had a chance to meet the Opata cacique from the Rio Sahuaripa. Reportedly "Gran Sisibotari" wore a fine cotton cloak and a wrist band of martin fur, and was attended by a page who carried the Chief's bow and a finely wrought quiver of arrows. Also accompanying the Chief, who "was still just a youth", were 11 vassals, "whom he called sons", all of whom treated "Gran Sisibotari" with great deference and respect (Perez de Ribas 1944: II, 173-174).

The "vassals/sons" referred to by Perez de Ribas probably were lineage heads that formed a council that advised Gran Sisibotari and other principal chiefs on civic matters. Alternatively, Sisibotari may have been accompanied by the upper echelon of a warrior's society, the existence of which was alluded to by Obregon in his account of the Ibarra expedition. In his narrative, Obregon recounts how the natives of the province and Valley of Senora conspired with the inhabitants of Guaraspi, Cumupa, and what appears to have been Huasabas⁶⁸, to plunder Ibarra's expedition. Using a pyral communication system, the Opata brought together from different towns and provinces several thousand well equipped warriors that were divided into

squadrons, and that battled Ibarra at the fortified town of Caguaripa, apparently along the Rio Bavispe. Although the Spaniards proved victorious at Caguaripa, the Opata and their poisonous arrows subsequently drove Ibarra from Sonora into the Sierras of Chihuahua (Hammond and Rey 1928: 169-173, 180-182, 187-190).

The sophisticated military organization described by Obregon for the Opata and to a lesser degree for the Pima Bajo (Hammond and Rey 1928: 160), was an apparent response to what appears to have been chronic warfare among and between the Opata and their neighbors. Cabeza de Vaca observed or learned something of this warfare, for he noted that "...those who were at war made peace with each other in order to receive us..." (Cabeza de Vaca 1944: 62). From later explorers and the Jesuits we know the Opata and Pima Bajo were involved in extensive inter and intra-group warfare (e.g. AGN 1630a; Bannon 1955: 51-53; Hammond and Rey 1928: 256-257; 1940: 273; MCC 1777; Nentvig 1764: 113). It is further apparent that this warfare often involved large armies numbering in the thousands that employed pyral communication towers, fortifications, and defensive retreats (*trincheras*) (e.g. AGN 1647, op. cit., Alegre 1959: III, 58; Karns 1954: 21; Pfefferkorn 1949: 207, 154-155).

With respect to the causes of warfare, Perez de Ribas (1944: II, 126 149) commented that the inhabitants of Sonora had continuous wars over "divisions of land and places which each recognized as their own"⁶⁹. Perez de Ribas may have been alluding here to conflicts over access to salt deposits, which were fiercely guarded and often contested⁷⁰. Although many early observers, including Cabeza de Vaca, mentioned or alluded to large numbers of deer in Sinaloa and Sonora (e.g. Pennington 1960: 207; Pfefferkorn

1949: 106, 113; Perez de Ribas 1944: I, 134), occasional fluctuations in the size and movements of deer populations probably led at times to competition over access to hunting territories (c.f. Gramly 1977; Hickerson 1965). The historical record indicates that the Opata and Pima Bajo also waged wars to acquire wives and slaves⁷¹. There is reason to believe that warfare also was correlated with territorial expansion. Sometime during the prehistoric period, for example, Opata from the Rio Sonora Valley apparently expanded westward into the San Miguel Valley, usurping territory formerly held by the Pima (Braniff 1978). This expansion may have been a consequence of rapid population growth in the middle Sonora Valley, which, as noted in the previous chapter, characterized the period after A.D. 1200. Apparently while some Opata were moving into the San Miguel Valley, others moved westward or southward from Sahuaripa or Oposura, usurping Pima lands along the lower Rio Yaqui. Although we know little about this expansion, the area that was usurped by the Eudeve⁷² Opata may have provided the merchant-elite of Casas Grandes with access to the coast around Guaymas, where apparently most of the shell originated that was manufactured at Paquime (DiPeso 1974: VI, 401). It is conceivable that Paquime encouraged or sponsored Opata expansion into the lower Yaqui and perhaps the San Miguel Valley to gain access to and control of shell deposits. For whatever reasons, the Opata apparently continued to encroach on Pima territory after Paquime's collapse. This continued encroachment may explain the eagerness with which several hundred Pima Bajo left Sonora with Cabeza de Vaca, subsequently settling at Bamoa along the Rio Sinaloa.

Cabeza de Vaca's relative silence and that of his companions regarding socio-political organization and warfare also extended to religious beliefs and

practitioners in Sonora. Unfortunately, later explorers and the Jesuit's also failed for the most part to describe native religion⁷³. The missionaries did, however, write at great length about their arch rivals — the infamous **hechizeros** or shamans. From the priest's frequent asides it is apparent that most Opata and Pima Bajo communities had one or more shaman(s) that were skilled at divination, and that employed a wide variety of herbs and techniques (e.g. sleight of hand, blowing) to cure sickness. Some shamans also were more like sorcerers, and were respected and feared for their ability to cause illness and misfortune (Johnson 1950; Nentvig 1980; Perez de Ribas 1944: II; Treutlein 1949).

Like most native peoples in the Greater Southwest, the spirit world that was mediated by shamans or sorcerers constituted one dimension of Opata and Pima Bajo religious beliefs. Both groups also recognized and worshipped the sun and moon, which, among the Opata, were thought of as brothers (DHM 1730: 628). There is some evidence that suggests that the Opata, and perhaps the Pima Bajo as well, worshipped several Mesoamerican gods of water and vegetation, knowledge of which may have been acquired through extensive contacts with Casas Grandes (DiPeso 1974: II). Several sources (Lange and Riley 1970: 236, 242; Treutlein 1949: 182-183; 1965: 163-164) indicate the Opata had what appears to have been a version of the "flying pole dance" that is associated with the worship of Tlaloc — the Mesoamerican god of thunder, rain, and lightning (Duran 1971: 161-166). Father Juan Nentvig (1980: 59) also reported that the Opata had a ceremony ("plea to the clouds") that was invoked to bring rain and that may have been directed at Tlaloc or Xipe Totec. Interestingly, during the course of archaeological fieldwork in the Sonora Valley, a fragment of an effigy vessel

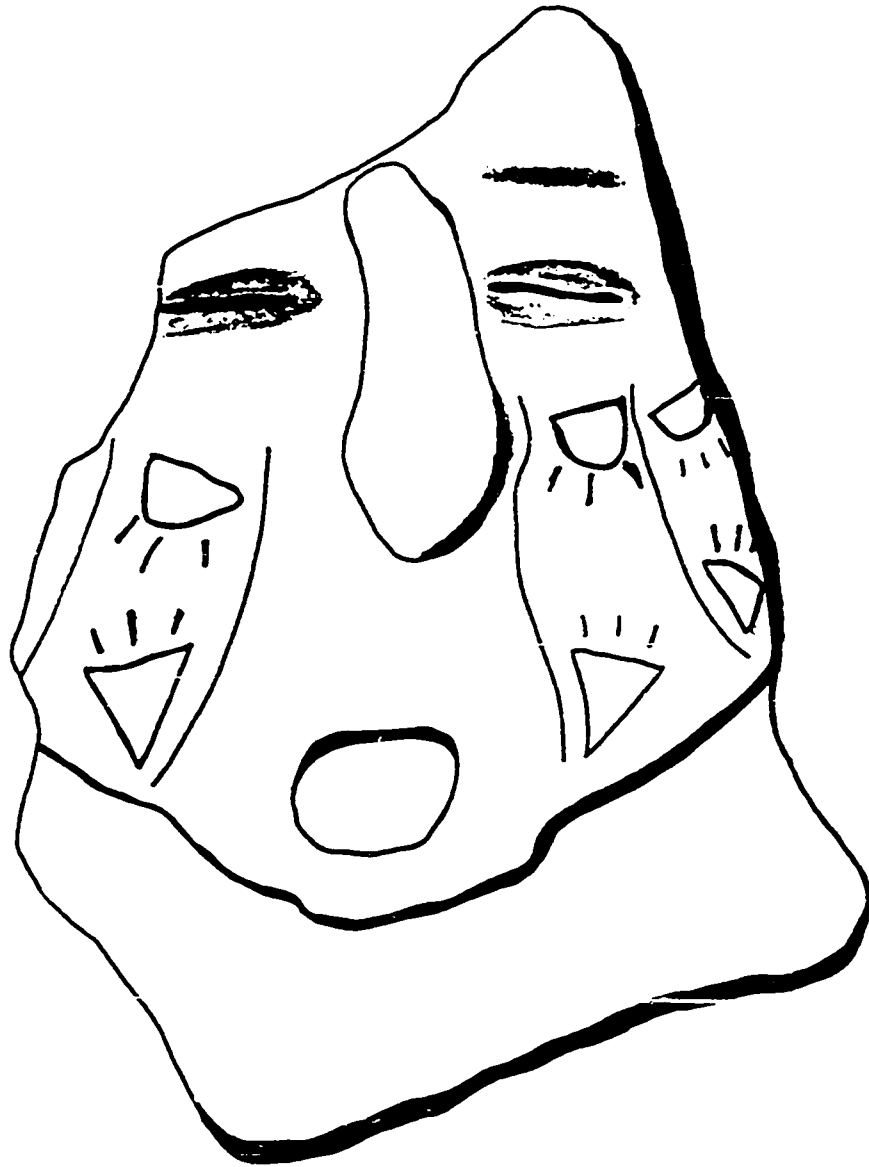


Fig. 9. FRAGMENT OF AN EFFIGY VESSEL DEPICTING XIPE TOTEC (Note the flacid face with closed eyes, open mouth, and what may be a "death mask", all of which characterize depictions of this Mesoamerican God.)

was uncovered apparently depicting the latter deity (figure 9).

It is unclear whether the principal chief or a quasi-priesthood existed among the Opata or Pima Bajo that directed worship of the sun, moon, and other deities. The existence of religious specialists that acted as a medium of the supernatural for the community as a whole was implied in several early Jesuit accounts of the Opata. For example, shortly after Fathers Martin Azpilcueta and Lorenzo de Cardenas began working among the Ayvinos and Batucos, two branches of the Eudeve Opata, the priests learned that the natives had shrines where they worshipped the remains of what was described in one instance as a "hechicero", and in another as an "indio principal"⁷⁴. The body of the "principal" was kept inside a cave in a seated position, apparently covered by an arbor of branches. Near the body the Ayvinos erected a ramada where shell, mantas, bird plumes and other offerings were made⁷⁵. Although Perez de Ribas (1944: II, 166-168) states that the Ayvinos made offerings to the **principal** to secure protection from lightning, the **principal** probably was a religious specialist who had earned the respect of the people for his ability to perform various public rites associated with the worship of Tlaloc or some other god of thunder, rain, and lightning. This inference is supported by Father Lorenzo de Cardenas' account of another shrine that was discovered by Father Azpilcueta apparently among the Batucos. The shrine was in a wooded area and consisted of a "sepulcher in the form of an altar" that contained the bones of a deceased "**hechizero**". Reportedly the natives made offerings to the **hechizero** believing that "it was who through him that they received beneficial rain" (Perez de Ribas 1896: II, 502).

Although there were many aspects of native life, including religious

systems, that were only touched upon by Cabeza de Vaca and later observers, it is nevertheless clear that central and eastern Sonora had a large and sophisticated population at the time of the Conquest. The explorer's comments, in this regard, correspond quite well with the archaeological record of the Rio Sonora Culture. The exploration chronicles also agree with recent archaeological data from northern Chihuahua — data that indicate that Paquime and many of its satellite communities were abandoned during the prehistoric period. The explorers' comments regarding the Jumano or the "people of the cows" further suggest that the El Paso Phase and many La Junta Focus inhabitants of the lower Rio Grande changed their lifestyles in the wake of Paquime's demise. These changes, which seem to have involved a greater involvement in bison hunting, did not, however, result in the abandonment of the lower Rio Grande.

The Journey of Fray Marcos de Niza

During the weeks and months following their arrival in Mexico City, Cabeza de Vaca and his two Spanish companions were frequent guests of the Marques del Valle (Cortes) and the recently appointed Viceroy of New Spain, Antonio de Mendoza. As Viceroy, Mendoza enjoyed enormous powers, including the right to initiate expeditions of discovery and conquest. It was with great interest, therefore, that Mendoza listened as the survivors of the Narvaez expedition talked about fertile and populous lands to the north, where turquoise, emeralds, bison hides, gold and other metals were seen or spoken of by the natives. Aware that similar information had been shared with Cortes, who also held a patent to conduct northern exploration, Mendoza proposed to Cabeza de Vaca and his companions that they undertake, on behalf of the Crown, a further reconnaissance of the lands

beyond Nueva Galicia (Bolton 1949: 15). The 3 Spaniards were still weary from their 8 year sojourn across North America, and all politely declined the Viceroy's offer. Dorantes did agree, however, to lend Mendoza his slave, Esteban — perhaps the most knowledgeable of the four Christians with regard to the northern frontier⁷⁶. A year or so later the Viceroy had the additional good fortune to meet Marcos de Niza, a Franciscan Friar well versed in navigation and cosmography who had travelled extensively in the New World⁷⁷ (Bolton 1949: 16; Undreiner 1947). Mendoza asked Fray Marcos to take Esteban and investigate the reports of Cabeza de Vaca and his companions. With the permission of his superior, Fray Marcos agreed to make the journey, together with another Franciscan, Fray Onarato. After the newly appointed Governor of Nueva Galicia, Francisco Vasquez de Coronado, had seen to all preparations⁷⁸, Fray Marcos and his entourage set out from the Villa of San Miguel in March of 1539.

The journey of Fray Marcos de Niza produced the first European observations on native populations in northwestern Sonora, southern Arizona, and the province of Cibola, better known as Zuni. These observations are in a report that was submitted by Fray Marcos to his superior (Hammond and Rey 1940). The report, unfortunately, is very brief and omits many details that apparently were set down in another and more detailed chronicle that is lost⁷⁹. Because of the brevity of Fray Marcos' extant account, particularly the Friar's comments about the expedition's itinerary, Fray Marcos' travel route has been the subject of debate⁸⁰. Many researchers have inferred that De Niza retraced part of the travel route of Cabeza De Vaca and his companions (e.g. Sauer 1932; DiPeso 1974: VIII). At no time, however, did Fray Marcos indicate or suggest that he travelled through the foothills of

northern Sinaloa and Sonora. Rather, as Undreiner (1947) has argued, Fray Marcos' account indicates the Franciscan followed as closely to the coast as possible as far as Las Trincheras in northwestern Sonora, at which point Fray Marcos and his entourage headed inland to Cibola. Since Undreiner's reconstruction is demonstrably the most general and parsimonious analysis of Fray Marcos' journey⁸¹, it will be followed in large part below.

Fray Marcos, Esteban, and Fray Onarato left San Miguel de Culiacan on March 7, 1539, accompanied by approximately 100 Indians from Sinaloa. After travelling for about 6 days, De Niza's party reached the town of Petatlan, apparently along the lower Rio Fuerte⁸². There, Fray Onarato became seriously ill, and after three days, Fray Marcos was forced to go on without his fellow Franciscan. Reportedly, Fray Marcos and his entourage journeyed 20 or 25 leagues beyond Petatlan, encountering friendly Indians that had little food because of a 3 year drought, and because their villages had been plundered by Christians from the Villa of San Miguel. During this 20 or 25 league stretch, apparently from the Rio Fuerte to near the mouth of the Rio Yaqui, Fray Marcos also reported meeting some Indians from an "island visited by the Marques del Valle" (Cortes) and from an island further up the coast (Hammond and Rey 1940: 63-64). The identity of these Indians cannot be established with any certainty⁸³, although the second of the two native groups probably were Seri from Tiburon island, near the mouth of the Rio Sonora (Undreiner 1947: 431).

Pushing onward, Fray Marcos apparently crossed the Rio Yaqui during the third week in March. The priest subsequently reported travelling for four days through uninhabited lands. Fray Marcos noted that at the end of the fourth day he "met other Indians who marveled at seeing me, because they

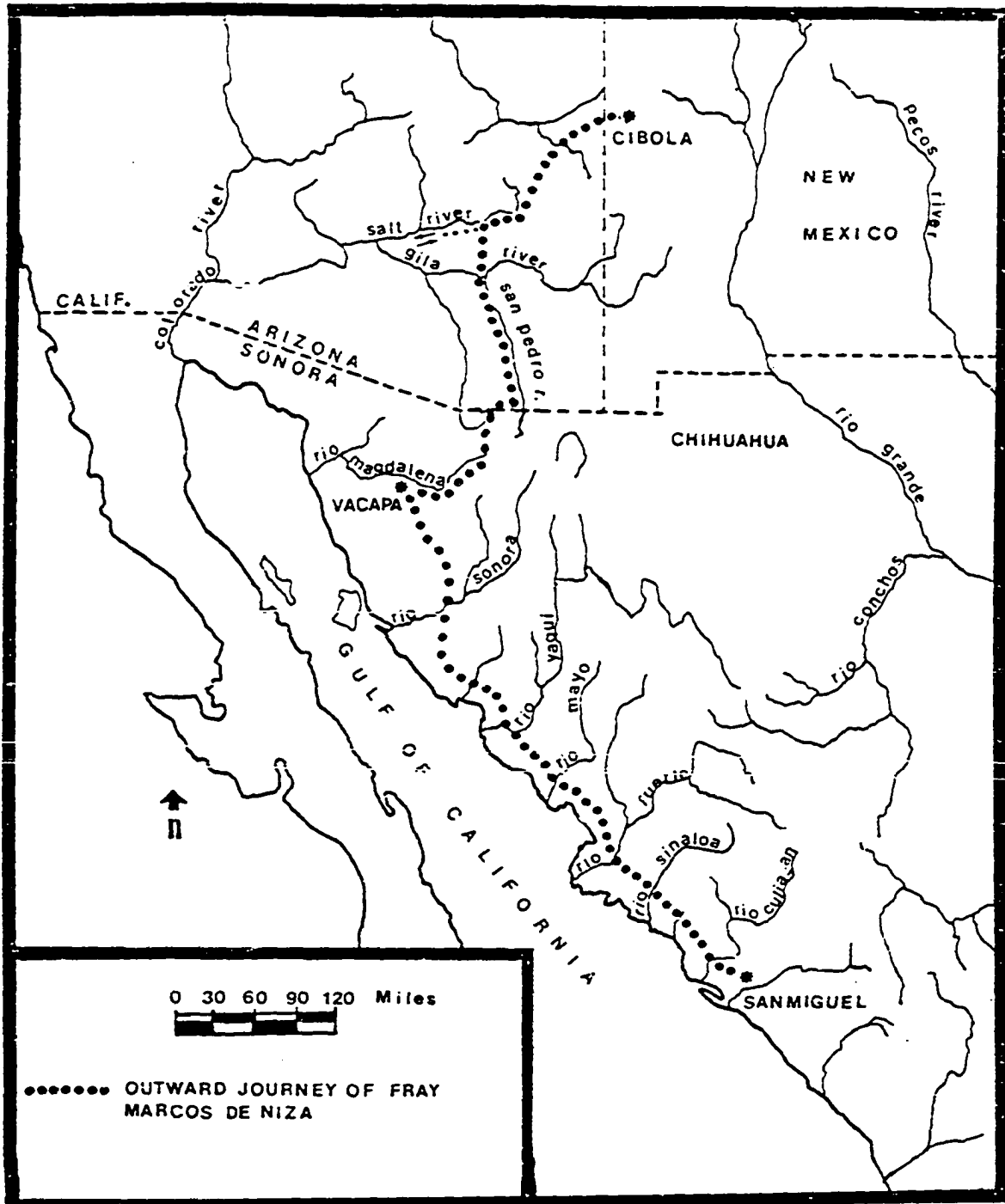


Fig. 10. POSTULATED ROUTE OF FRAY MARCOS DE NIZA'S EXPEDITION

knew nothing at all of Christians". These natives apparently were Pima Bajo that were residing along the lower Rio Sonora, perhaps near Pitic or what is today, Hermosillo (Pennington 1980: 13; Sauer 1935: 38). The Pima reportedly gave Fray Marcos a warm reception and much food, and noted that four or five days inland there was a valley with many large settlements where the people wore cotton clothing. The inhabitants of Pitic were referring here to their more prosperous Pima and Opata neighbors upstream. In an apparent reference to mica pendants and pottery made with mica-bearing clay⁸⁴, the inhabitants of Pitic told Fray Marcos that their upstream neighbors had vessels and pendants made of gold. Although intrigued with these reports, Fray Marcos noted that, since his instructions were to stay near the coast, he decided to investigate these reports of gold on his return trip, after he had explored further to the north (Hammond and Rey 1940: 64-65).

Accordingly, Fray Marcos and his entourage left Pitic and continued north for three days, stopping briefly at other Pima settlements where they were well received. At the end of the third day, Fray Marcos and his companions came to "a good-sized settlement" called Vacapa, apparently near Las Trincheras, along the Rio Magdalena⁸⁵ (Undreiner 1947: 437). The inhabitants of Vacapa reportedly gave the friar "a fine reception and much food, which they had in abundance, as this was all irrigated land". Concerned that he may have strayed too far inland, Fray Marcos decided to remain at Vacapa, in order that he might send some Indians to the coast. After sending scouts by 3 routes, Fray Marcos instructed Esteban "to go fifty or sixty leagues toward the north to see whether, by that route, information could be obtained of something important of what we were seeking". Esteban did as instructed, and within a few days, messengers arrived at

Vacapa with news from Esteban that he had learned of a fabulously rich province with seven cities, called Cibola (Hammond and Rey 1940: 65-66).

Although Fray Marcos was anxious to follow Esteban, the Friar remained at Vacapa, patiently awaiting the return of the Indians he had despatched to the sea. On Easter Sunday, some 10 days after their departure, the scouting parties returned, accompanied apparently by Seri Indians who gave Fray Marcos a detailed account of the Gulf of California and its inhabitants. That same day, 3 "Pintados" came to Vacapa, their faces, chests, and arms all decorated. As Undreiner (1947: 442) has suggested, these "Pintados" were most likely Sobaipuri Indians, a somewhat distinct group of Piman-speakers that occupied the Santa Cruz and San Pedro River Valleys of Arizona (Sauer 1934; Spicer 1962: 118-151). The Pintados told Fray Marcos that their lands formed a circle, part of which bordered on the lands of the Seven Cities. The **Pintados** also spoke at length about the wealth of Cibola, confirming the report sent back by Esteban (Hammond and Rey 1940: 67-68).

After spending a total of ten days at Vacapa, Fray Marcos set out early in April for Cibola, his entourage now bolstered by several Seri Indians from the coast as well as the three **Pintados**. Following in Esteban's footsteps, Fray Marcos travelled for 3 days up the Rio Magdalena, to a Pima settlement near San Ignacio. Reportedly, the inhabitants all wore "beautiful and good turquoises hanging from their ears and noses", and spoke at great length about the wealth of Cibola. The natives also told Fray Marcos of the existence of three other "kingdoms" called Marata, Acus, and Totonteac. The Pima of San Ignacio reportedly went to Cibola, and apparently Marata, Acus, and Totonteac as well, to trade "their sweat and personal service" for

turquoise, bison hides, and "other things, all of which they have in the pueblo in abundance" (Hammond and Rey 1940: 68).

From San Ignacio, Fray Marcos continued up the Rio Magdalena to Cocospera (Undreiner 1947: 446). Here the Franciscan noted "a better country than the one we had left behind". Accordingly, De Niza erected two crosses and took possession of the region on behalf of the Crown. Fray Marcos then continued on for four days, apparently travelling from Cocospera to modern Santa Cruz, and from here, between the Huachuca and Patagonia mountains to Huachuca, Quiburi, and, finally, to Baicatcan, roughly half way down the Rio San Pedro (Undreiner 1947: 448). En route Fray Marcos reported "always finding settlements, good lodging, excellent reception, and many turquoises, hides of the cattle, and the same information regarding the country" [of Cibola]. At Baicatcan, messengers told Fray Marcos that Esteban continued to hear of the great riches of Cibola, and that Esteban had halted his march so the friar could catch up with him. Esteban reportedly was some six days travel from Baicatcan, and the last four days involved crossing an uninhabited area (Hammond and Rey 1940: 69).

Fray Marcos, then, hastened on, travelling from Baicatcan down the Rio San Pedro. Just south of what appears to have been the confluence of the San Pedro and Gila Rivers, Fray Marcos was welcomed at what apparently was the pueblo of Ojio (Undreiner 1947: 449). The pueblo reportedly was "in green irrigated land", and its inhabitants were well dressed in cotton and animal skins and bedecked with turquoise. Among those who greeted the Franciscan was "the ruler of the pueblo and his 2 brothers", "very well dressed in cotton, adorned, and each wearing a turquoise necklace". The ruler and his brothers offered Fray Marcos "many turquoises

and skins of cattle, very fine vases, and other things". Fray Marcos Niza politely refused the gifts, hoping to dissuade the Indians of any rumors they might have heard regarding Spanish atrocities to the south. In an apparent reference to mountain sheep, "the chief of the pueblo and other Indians" told Fray Marcos that the inhabitants of Totontec had small animals from which they made cloth, similar to the wool robe worn by De Niza (Hammond and Rey 1940: 70).

After a brief stay at Ojio, Fray Marcos made the four day trek across the ~~despoblado~~, apparently travelling from the Gila River past modern Globe and Claypool to the vicinity of the Tonto National Monument, in the Salt River Valley (Undreiner 1947: 451-452). The Valley reportedly was well settled, and "at the first pueblo" many men and women greeted the friar with offerings of food. Both men and women reportedly wore nose and ear pendants of turquoise, and the women had "fine skirts and shirts". Fray Marcos also noted that some of the men "wore necklaces of turquoise, of the variety I mentioned as being worn by the chief and his brothers at the pueblo before coming to the despoblado, except that the latter had only one string and these had three or four". The natives also had very good blankets and skins of cattle and spoke at length of Cibola. Reportedly many of "the fine things" that the natives had were obtained at Cibola, "in exchange for personal service". The natives also spoke of "the woolen cloth of Totontec, where, they said, the houses are like those of Cibola, but better, and that there are many more of them, and that it is a very extensive place, without limit" (Hammond and rey 1940: 71).

While Fray Marcos was at the above mentioned pueblo along the Salt River, he reportedly learned that the distant coast turned west very

abruptly. Since, according to Fray Marcos, "the turning of the coast is very important, I wanted to verify it, and so I went in search of it, and I saw clearly that at latitude of thirty-five degrees it turns to the west". By this statement the friar seems to have implied that he travelled from the Tonto National Monument down the Salt River, apparently observing from the summit of a mountain the southeast to northwest trend of the mountains near the Gulf of California⁸⁶. After confirming what the natives had told him regarding the coastline, Fray Marcos did an about face and travelled for 5 days up the Salt River Valley. En route, the friar noted that the Valley was "thickly settled by attractive people", with "villages every half or quarter of a league". The natives reportedly had an abundance of food and Fray Marcos likened their irrigated lands to a garden. Like other Pima communities the natives also spoke highly and at great length of Cibola (Hammond and Rey 1940: 71-73).

After an initial 5 day trek up the Salt River Valley, Fray Marcos apparently followed the Salt River upstream for another 3 days, travelling perhaps as far as Carrizo Creek. During this most recent journey, Fray Marcos noted he encountered natives who had the largest quantities of turquoise he had yet seen, and more than 2,000 skins of cattle, "extremely well tanned", all of which had been acquired at Cibola. Fray Marcos also relates that he spoke at great length with a native of Cibola who had fled from a governor of one of the seven cities. The native talked at length of Cibola and also noted that, "to the southeast there is a kingdom named Marata, which used to have many and very large settlements, and that all of them had these stone houses and terraces". Reportedly, the inhabitants of Marata "have been and are at war with the lord of the seven cities, and

because of this war the kingdom of Marata has declined a great deal, although it is still independent and at war with the others". The friar's informant also mentioned that "toward the west"⁸⁷ there was another kingdom called Totontec. Reportedly, the kingdom of Totontec was "the biggest in the world, with the most people and riches", and its inhabitants wore clothing made of a wool-like material that was obtained from wild sheep previously described to Fray Marcos (Hammond and Rey 1940: 72-73)

Toward the end of Fray Marcos' most recent trek up the Salt River Valley, the Franciscan and his entourage came to an Indian pueblo where he learned that in four days he would come to a **despoblado** or uninhabited area that marked the beginning of a 15 day journey that would bring him finally to Cibola. At the behest of his guests, Fray Marcos rested for several days, while his hosts assembled food and supplies to be taken to Cibola. After all preparations were made, the friar chose about 30 "prominent men, all well dressed, wearing turquoise necklaces" to accompany him. Although it is impossible to be certain of the route followed, Fray Marcos probably travelled from Carrizo Creek to the juncture of the Salt and White Rivers, and from here followed one of two trails that led northeastward to the Little Colorado River. After reaching the Little Colorado, Fray Marcos and his party had only to follow the river to where it meets the Zuni River, and then down the latter to Cibola (Undreiner 1947: 466-467). With regard to the journey, Fray Marcos noted that on the first day "we marched over a wide and much-used road", stopping for dinner and then to sleep at two springs, the second of which had a shelter which the Indians had built for De Niza. Reportedly the road was lined at intervals with "old shacks and many signs of dead fires of the people who traveled this road on their way to Cibola".

The friar next states that "In this manner I traveled twelve days, always well supplied with provisions of deer, hares, and partridges of the same color and taste as those of Spain, although slightly smaller" (Hammond and Rey 1940: 74-75).

On the 12th day of this last leg of his journey, Fray Marcos and his entourage happened upon one of the more than 300 indians from the Salt River Valley that had accompanied Esteban to Cibola. To the friar's disbelief, the Indian told how Esteban was not welcomed at Cibola, and how after Esteban refused to leave, the Cibolans captured and then killed Esteban and many of his companions. Hoping against hope that the Indian was mistaken, Fray Marcos and his party continued on. Less than a day's journey from Cibola, De Niza and his entourage encountered several more survivors of the massacre at Cibola. Fray Marcos was now forced to accept the truth, as did his Indian escort, which refused to proceed further; some even talked of killing Fray Marcos to revenge the slaughter of their relatives who died with Esteban. The friar was able, however, to convince two caciques to at least escort him to where he could observe Cibola from a safe distance. From a nearby hill Fray Marcos finally got to see the city of Cibola, or what apparently was the Pueblo of Hawikuh. As his native informants had indicated, the Pueblo was indeed large and had "a fine appearance". The friar noted that he was tempted to descend to the pueblo for a better look, but fearing his own death and the loss of all information about Cibola, he withdrew, sharing his excitement with the two caciques that had accompanied him. The latter told Fray Marcos that Cibola or Hawikuh was the smallest of the seven cities, "and that Totontec was much larger and better than all the seven, that it has so many houses and people that there is no end to it"

(Hammond and Rey 1940: 78-79).

With the certain knowledge of Cibola and with stories of other kingdoms like Totontec, Fray Marcos late in May began the long trek back to the Villa of San Miguel. From the priest's brief comments it appears that he retraced his steps, except for a slight detour from Pitic up the Sonora Valley, where he learned of and observed from a distance numerous Pima villages in the vicinity of modern Ures. After erecting crosses and taking possession of the Valley, Fray Marcos hastened on to the Villa of San Miguel, arriving there sometime around the second week in July (Hammond and Rey 1940: 79-80; Undreiner 1947: 473-475).

The aboriginal culture of the Pima Alto. It is apparent from Fray Marcos' itinerary that the Friar and Esteban spent the better part of their journey to Cibola travelling through the Trincheras and Hohokam culture areas. As noted in the previous chapter, many researchers believe the Hohokam and Trincheras Cultures "collapsed" between A.D. 1350-1450, and that what little remained of these cultures persisted in the guise of the Pima Alto — the historic inhabitants of northwestern Sonora and southern Arizona (Ezell 1983; Fontana 1983; Gummerman and Haury 1979; Haury 1976). This interpretation of the protohistoric period has been strongly influenced by ethnographic data that were compiled after 1690 by Father Eusebio Kino and Captain Juan Manje (Bolton 1948, Karns 1954; Burrus 1971). Significantly, most researchers have ignored Fray Marcos' chronicle, which clearly suggests that the Hohokam and Trincheras cultures weathered the postulated uncertainties (e.g. climatic shifts, wars, rebellions) of the late prehistoric period far better than anthropologists have been willing to admit.

The fact that Fray Marcos reported only 2 uninhabited areas

(*despoblados*) during his entire journey from the lower Rio Sonora to Zuni clearly suggests, for instance, that northwestern Sonora and southern Arizona retained a sizeable population at the time of the Conquest⁸⁸. Unfortunately, like so many of the explorers, Fray Marcos said little about the actual size or extent of native populations. Figures compiled by Kino and Manje indicate there were approximately 30,000 Pima in northwest Mexico and southern Arizona in @1693 (Sauer 1935: 32). Evidence to be discussed in chapters 5 and 6 indicate, however, that the population of the Pimeria Alta declined by at least 50% during the seventeenth century. There were, then, approximately 60,000-75,000 Pima in northwestern Sonora and southern Arizona at the time of Fray Marcos' *entrada*.

The friar's mention of "good size" settlements such as Vacapa and other pueblos along the Santa Cruz, San Pedro, and the Salt Rivers that provided "good lodging" supports the idea that the Pima were not only numerous, but resided in permanent villages. This inference is at odds with the majority opinion that all or most compound villages ceased to exist after A.D. 1450, and were supplanted by small *rancherías* (70-120 persons) containing single-unit structures made of poles and mats or brush (Doelle 1981; Franklin and Masse 1976; Masse 1981). As DiPeso (1981: 115) has pointed out, both the archaeological and historical records indicate several different house types and village plans characterize the protohistoric period in southern Arizona (DiPeso's 1953, 1956: 539-54). In light of Fray Marcos' comments and the evidence of disease, it seems reasonable to conclude that the abandonment of compound villages and the proliferation of *rancherías* with perishable structures was a post-disease phenomena, dating to the period after A.D 1539. This conclusion is in keeping with what Bandelier was told

by a Pima informant in the late 1800's, namely that warfare and a "fearful plague" decimated the Pima, driving them from their compound villages. Reportedly, after the plague the Pima were "too weak" to rebuild their former pueblos and accustomed themselves to living in **rancherías** with perishable structures (Fewkes 1912: 71). Further support for this interpretation can be found in the fact that the Pima built adobe structures for Kino at 3 different villages in which the priest established a residence, even though the Pima themselves resided in more perishable structures⁸⁹ (Masse 1981: 32).

While Fray Marcos does not appear to have penetrated the lower Gila and Salt Rivers, there are several lines of evidence that suggest that the Hohokam heartland also retained a large and sophisticated population in 1539. With few notable exceptions (Dipeso 1956: 18; Ezell 1963: 65), this possibility has been rejected by most researchers, many of whom have cited Kino and Manje, both of whom reported the Gila River was sparsely populated⁹⁰. However, almost a century before Kino and Manje arrived on the scene, in 1604-05, Onate reportedly found "a great multitude of people" along the Gila River (**Nombre de Jesus**), most of whom apparently resided in 20 **rancherías** or pueblos (Salmeron 1966: 71). That some, if not many, of these settlements were compound villages with platform mounds and multi-storied "Great Houses" was implied by Bandelier's Pima informant when he noted that the "Great Houses" were abandoned because of warfare and a "fearful plague". The information given De Niza about the "Kingdom" of "Totontec"⁹¹ also suggests that many "Classic Period" Hohokam settlements in the Gila-Salt basin survived the "collapse".

As we have seen, Fray Marcos first heard of Totontec at Vacapa, and

was later told by the Pima along the middle Salt River that Totontec was "toward the west" (Undreiner 1947: 462, f. 131). Totontec reportedly "had houses like those of Cibola, but better, and that there were many more of them, and it is a very extensive place, without limit" (Hammond and Rey 1940: 71). Other Pima told the friar that the Kingdom of Totontec "...was much larger and better than all the seven [cities of Cibola], that it has so many houses and people that there is no end to it" (Hammond and Rey 1940: 78-79). Still other Pima commented that Totontec was the "biggest [kingdom] in the world, with the most people and riches" (Hammond and Rey 1940: 72). On several occasions Fray Marcos also was told that the Totontecs wore clothing made of a wool-like material from small, wild sheep (Hammond and Rey 1940: 70, 72). This last bit of ethnographic data is particularly instructive, inasmuch as it corresponds with later reports that the inhabitants of the lower Gila-Salt region were heavily involved in the exploitation of wild sheep. In 1697, Manje noted, for example, that the settlement of Tucsoni Moo was "named thus on account of a great mound of wild sheep horns piled up, looking like a mountain...these animals are so plentiful that they are a common source of sustenance...this pile of horns is so high that it is higher than some of their houses...it appears as if there are more than 100,000 horns" (Karns 1954:87).

During the course of his journey from the Rio Sonora to the headwaters of the Salt River, Fray Marcos commented on several occasions about the Pima having abundant food and cotton. With respect to wild resources, Fray Marcos mentioned, deer, hares, and quail being eaten. From later sources we know these were just a few of the game animals that were hunted. The Pima also exploited a wide variety of wild plant resources

(Castetter and Bell 1942). It is clear from Fray Marcos' account, however, that gathered foodstuffs were overshadowed in importance by cultigens. Indeed, the friar frequently commented about Pima use of irrigation. These comments agree nicely with what we know from the archaeological record to have been the case during the Classic Period in northwestern Sonora and southern Arizona. Actually, as late as the 1690's, Kino and Manje reported that many Pima communities relied on irrigation agriculture, cultivating large amounts of maize, beans, squash, and cotton (e.g. Burrus 1971: 293, 360-361).

Fray Marcos' account indicates that the Pima were able to produce enough food and other basic commodities to meet not only subsistence needs, but to engage in extensive trade. Indeed, one can not help but be impressed with the numerous references to turquoise and what apparently were bison robes that were acquired by the Pima from Zuni. The friar's observation about travelling over a wide and much used road that was lined at intervals with "old shacks and many signs of dead fires" (Hammond and Rey 1940: 75) is further testimony to the frequent movement of goods and people to and from Zuni and the Pimeria Alta. As noted, Fray Marcos was told by the Pima that they travelled to Zuni to exchange "personal service" for turquoise and other goods. It is probable that the Pima, along with the Opata, also supplied Zuni with cotton mantas, which Zuni apparently lacked (Salmeron 1966: 64). During the early historic period the Gila River Pima were well known for their fine cotton blankets, some of which were traded as far as coastal California (Ezell 1961: 29). Logic dictates that the Soba and Himeri Pima of northwestern Sonora also supplied Zuni as well as other communities throughout the Greater Southwest with shell and perhaps coral. Shell was apparently one of a number of items that were sought by Pueblo Indians

who, as late as the mid 1800's, travelled each year to Magdalena, Sonora, bringing buffalo hides and other goods which they exchanged with the Pima and their mestizo neighbors (Lange and Riley 1970: 237). In the early 1700's Father Luis Velarde reported that some western Pueblo Indians (Moquinos) once held what were apparently trade fairs with the Sobaipuri Pima (DiPeso 1953: 5-6). Although the Hohokam/Sobaipuri are thought not to have retained an involvement in the production and exchange of Gila Polychrome following the "collapse"⁹², Fray Marcos was quite explicit about seeing "very fine vases" at what apparently was the pueblo of Ojio along the lower Rio San Pedro (Hammond and Rey 1940: 70).

Like so many explorers, Fray Marcos was all but silent on the subject of native socio-political organization. Unfortunately, it is not until the 1700's — many years after the introduction of Old World diseases — that the Jesuits and other Spaniards had an opportunity to comment on native political life. During the late 1700's, when the population of the Pimeria Alta began to rebound from the effects of introduced-disease, the Pima were organized into a chiefdom, governed by a paramount chief whose office was hereditary (Ezell 1983). This rather sophisticated political organization has been viewed as a post-contact phenomena, quite unlike what existed "aboriginally", when many Pima reportedly were governed by respected elders and shamans who had little influence beyond their own *rancheria* (Spicer 1962; Winter 1973). Not all sources, however, indicate the Pima were integrated in such a simple fashion.

When Kino and Manje first began working among the Sobaipuri Pima of the Rio San Pedro, they found two chiefs (Coro and Humani) that claimed the allegiance of the valley's 2,000 inhabitants (Karns 1954: 78-81). The Soba

Pima of northwestern Sonora also were led by a cacique with 4,000 followers (Spicer 1962: 119). Dobyms (1974) has pointed out that the Gila River Pima also appear to have had a paramount chief. These "chiefs" of the Pima seem very similar to the "principal chiefs" found among the Yaqui, Opata, and Pima Bajo. Interestingly, oral traditions suggest that the Pima Alto, like the Opata, were organized in terms of patrilineages and clans. Manje's comment that the Sobaipuri of San Xavier del Bac were divided into three separate neighborhoods or **barrios** (Doelle 1981: 67) is perhaps a further indication that lineages were localized. Unfortunately, the functions and importance of lineages and clans has been obscured by history (Ezell 1983; Russell 1908), and it is unclear whether ranking of descent groups formed the basis of Pima socio-political organization. If Totonteac can be equated with the Classic Period remains of the Hohokam of the Gila-Salt basin — as Fray Marcos' account suggests — then chiefdoms must have been present in southern Arizona at the time of the friar's entrada⁹³ (Grebinger 1976; Martin and Plog 1973: 316-317; Wilcox 1977). Fray Marcos may in fact have alluded to the existence of chiefdoms based on ranked patrilineages when he commented on the "ruler" of Ojio and his 2 brothers being "very well dressed in cotton, adorned, and each wearing a turquoise necklace" (Hammond and Rey 1940: 70). De Niza's only other reference to what might have been lineage heads that enjoyed some differential access to goods and services was his comment that he took 30 "prominent men", all very well dressed and wearing turquoise necklaces, with him to Cibola from a pueblo along the upper Salt River.

The rather sophisticated political organization led by the paramount Chief that developed among the Pima during the late 1700's has been

attributed, in part, to requirements for coordination in raiding and warfare against the Apache and Yavapai (Ezell 1983: 155). Raiding and warfare during the late prehistoric period also may have contributed to political centralization among the Trincheras-Hohokam/Pima. The existence of some form of sophisticated military organization that participated in large-scale warfare is certainly implied by the numerous defensive retreats and lookouts that were constructed in the Pimeria Alta after A.D. 1300. Although we know relatively little about this warfare⁹⁴, it is clear that the Pima often fought amongst themselves. In the 1690's, Kino and Manje found many Pima communities involved in what appear to have been long-standing disputes (e.g. DiPeso 1953: 27-28; 259; Karns 1954: 21, 78-81). Perhaps like their neighbors, the Pima fought over access to hunting and gathering territories, water, and salt deposits. Slave raiding and competition over scarce resources and trade partners also may have embroiled the Pima in conflicts with the Seri, Opata and the Yavapai (Ezell 1983; Treutlein 1949: 207). The Opata were particularly hostile to the Pima⁹⁵, and as we have seen, apparently usurped Pima lands in the San Miguel Valley during the late prehistoric period. Sometime before or immediately after the Conquest, the Quechan and Yavapai also began encroaching on the Gila River Pima (Ezell 1983; Goodyear 1977).

The fact that Fray Marcos said relatively little about Pima socio-political organization and warfare is not altogether surprising, given the brevity of the Friar's report and his preoccupation with Cibola. The priest's failure to comment on native religious beliefs and practitioners is, however, surprising, particularly as his report was sent to the Commisary General of the Franciscan Order. As is true of many aspects of Pima culture, much of

what we know about Pima religion is based on observations from the eighteenth and later centuries (e.g. Nentvig 198; Russell 1908; Treutlein 1949; Underhill 1939). These data indicate that the Pima — like most other native peoples in the Greater Southwest — saw the world around them as imbued with supernatural forces. Shamans that specialized in divination, curing, controlling weather, and promoting success in warfare provided access to the spirit world. It is conceivable that the Pima, aboriginally, also had priests that organized communal rites that were directed at the sun and other deities, including "Earth Doctor" and "Elder Brother". Earth Doctor reportedly governed "the winds, the rains, etc." [thunder, lightning?] (Russell 1908: 250-252), and may be another Southwestern representation of Tlaloc. Perhaps like the "headman" (see Bahr 1983) of more recent times, the "principal chiefs" that have been postulated for the Pima attended to deities such as Earth Doctor and to the ceremonial cycle of the community. Presumably the platform mounds that have been found in the Gila-Salt basin as well as in the Hohokam periphery were focal points for ceremonies and rites of intensification. Unfortunately, since Fray Marcos was silent on such matters, we can not be certain of the existence of native priests or the use of platform mounds.

Fray Marcos' report to his superior admittedly leaves many questions unanswered with regard to aboriginal culture in northwestern Sonora and southern Arizona. Still, it is reasonable to conclude from a comparison of Fray Marcos' account and the archaeological record that the Hohokam and Trincheras cultures **did not** vanish or "collapse" during the fifteenth century. Indeed, the Friar's comments regarding good size settlements, irrigation agriculture, food surpluses, extensive trade, etc., agree quite well with

archaeological interpretations of native life at the height of the Classic Period, prior to the "collapse". Fray Marcos' observations also agree with what Cabeza de Vaca and his companions were told while at Corazones, namely that "all along that south coast towards the north...there were many people and a lot of food and much cotton, and the houses were large; and they had many turquoise stones..." (Hedrick and Riley 1974: 63).

The Expedition of Francisco de Ibarra

The information regarding Cibola that was brought back by Fray Marcos led many in Mexico to believe that the barefooted Friar⁹⁶ had discovered another Tenochtitlan. Viceroy Mendoza was particularly impressed with De Niza's findings, and promptly directed the Governor of Nueva Galicia to organize a full-scale expedition to Cibola⁹⁷. Coronado's expedition mustered at Compostela in February, 1540, and over the course of the next two years, explored many areas of the Greater Southwest (Hammond and Rey 1940). As noted, the expedition produced valuable insights on groups like the Opata and Pima Bajo. The expedition, however, was a failure from the Viceroy's perspective and that of many of its participants. In point of fact, Coronado found little gold or other riches at Cibola and in other native provinces. To make matters worse, Nueva Galicia was rocked by a native uprising in the spring of 1541, while Coronado and many Spaniards from Nueva Galicia were exploring in the north. The rebellion, commonly known as the Mixton War, lasted for almost a year and left many Spaniards dead and Spanish property throughout Nueva Galicia destroyed⁹⁸ (Bancroft 1883: 490-514; Brand 1971).

The disappointing results of Coronado's expedition and the Mixton War temporarily discouraged further attempts at northern exploration. It was not

until the discovery in 1546 of vast silver deposits near what became the town of Zacatecas that Spanish interest in exploration was rekindled. In 1554, the second Viceroy of New Spain, Louis de Velasco, authorized a series of **entradas** beyond Zacatecas to locate additional sources of mineral wealth. The expeditions were entrusted to a young Basque named Francisco de Ibarra⁹⁹. From 1554-1562, Ibarra pushed the mining frontier ever northward, locating new mineral deposits and assisting others in the founding of mines at Sombrete, Fresnillo, Nieves, Chalchihuites, Avino, and San Martin. In recognition of his service to the Crown, Ibarra, in 1562, was appointed Governor and Captain General of the newly-formed province of Nueva Vizcaya¹⁰⁰. With his appointment, Ibarra received instructions from the Viceroy to investigate reports of rich and populous land to the north of Avino and San Martin. Accordingly, Ibarra set out in January, 1563, on what became a 2 year adventure, the last part of which retraced segments of Cabeza de Vaca's and Coronado's travel routes in Sinaloa, Sonora, and northern Chihuahua (Hammond and Rey 1928; Mecham 1927).

Ibarra's expedition generated significant insights on a variety of native peoples and the fate of Casas Grandes. Of interest here is the first part of the expedition, specifically several months that were spent in the Sierras about Topia. Shortly after Ibarra's **entrada**, the Acaxee and other groups that inhabited the Sierras and the eastern slopes of the Great Divide came into sustained contact with Spanish miners and Old World diseases. The rapidity with which typhus and other maladies destroyed the fabric of Indian life makes Ibarra's expedition, particularly Obregon's account of the **entrada**¹⁰¹, an invaluable commentary on native life in the Sierras.

Ibarra set out from San Martin with 170 mounted and well-equipped

Spaniards, most of whom were fellow Basques (Hammond and Rey 1928: 45). Three Franciscans and a large but unknown number of African slaves and Indian auxiliaries also accompanied the Governor (Mecham 1927: 112-113). After commandeering supplies at Nombre de Dios and the frontier mining settlement of Avino, Ibarra's army continued northward, establishing a base camp in the Valley of San Juan. There, the Spaniards learned from the local Tepehuan of a wealthy town and province to the west called Topia. The Tepehuan reportedly showed Ibarra a colorful feather shield, a feather crest of silver, and cotton clothing that had been acquired from Topia through trade. Ibarra was sufficiently impressed, and promptly dispatched a scouting party to learn more of Topia and its whereabouts. After the reconnaissance returned unsuccessful, Ibarra took 40 men and an Indian guide and went himself in search of Topia. The Governor left San Juan in April, 1563, apparently ascending the Rio Nazas to modern Tepehuanes, and then following what came to be known as the "Topia Road" (West and Parsons 1941). After following the "Road" for about a week, the Spaniards reached the summit of a high mountain from which they observed at a distance what appeared to be a large and wealthy town. Although Ibarra was anxious to claim the town and its presumed wealth, the Governor's *maestro de campo* prevailed upon him to return to San Juan for supplies and the remainder of the army (Hammond and Rey 1928: 47-58; Mecham 1927: 113-119).

Once back at the Valley of San Juan, Ibarra found that some of his troops had mutinied during his absence. Other matters kept the Governor busy and it was not until January, 1564, that Ibarra returned with his army to the *quebrada de Topia*¹⁰². After a difficult descent to the floor of the *quebrada*, the Spaniards set out for Topia, encountering extensive fields of

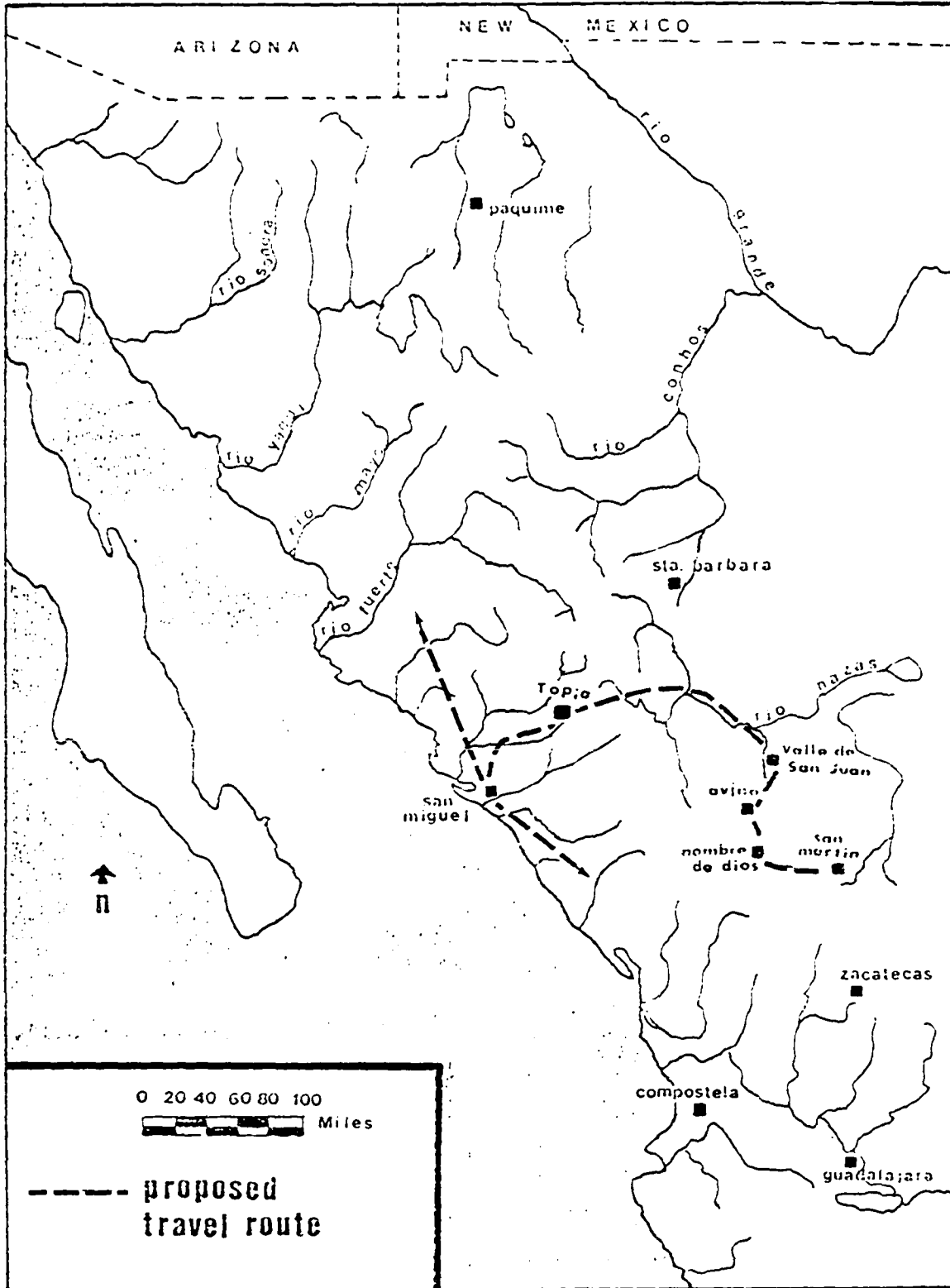


Fig. 11. POSTULATED ROUTE OF FRANCISCO DE IBARRA'S EXPEDITION

corn, beans, and pumpkins. The sight of the fields reportedly heightened the Spaniards' expectations, as did the sight of 6 Indian women, "clothed from the waist down in cotton blankets". Shortly after surprising the women, the Spaniards spotted Topia itself. According to Obregon, the town had a fine fortress that "seemed to be the stronghold and fortification of a great lord". The fortress consisted of a dry wall enclosure, "as high as a small lance", lined with maguey and prickly pear trees. At the front of the fortress was a stairway of stone and mortar, and inside there stood a "house of three stories" (Hammond and Rey 1928: 62, 64). As the Spaniards approached the fort, they were besieged by a large number of Acaxee warriors, "decorated with very brilliant native trappings", and equipped with bow and arrows, shields, clubs, and small spears. During the ensuing battle, one of Ibarra's arquebusiers felled an Acaxee, prompting the remaining native force to retreat to their fortress. Ibarra's men subsequently stormed the fort, and after the Spaniards seriously wounded a native war leader, the Acaxee surrendered (Hammond and Rey 1928: 61-65; Mecham 1927: 126-130).

Ibarra's army remained at Topia during the winter of 1564, healing its wounds and reconnoitering for mineral deposits. During their brief stay at Topia, the Spaniards noted several aspects of Acaxee culture. Obregon, in particular, noted that the Acaxee were cannibals, as "countless bones and skulls of those whom they had killed and eaten were found". Obregon also indicated that the natives made extensive use of idols, some of which were kept high up in the mountains and in caves. Reportedly, Ibarra had all the idols that he could lay his hands upon buried at the foot of a cross that was erected in the town. The Governor apparently was aided in this task by the "principal **sayayn**" or chief. According to Obregon, "it was a conspicuous

fact that there were two factions in the town of Topia and in the clash", one of which chose not to fight along side the principal chief at the time of Ibarra's assault on the town. After the principal chief and his supporters made peace with the Spaniards, the chief asked Ibarra to "go against his enemies", presumably those who fled Topia at the time of Ibarra's arrival in the **quebrada**. Ibarra acceded to the chief's request, and with a small group of men, travelled to a nearby **barranca** and what appears to have been the town of Canelas. There, the Spaniards found a fortress and "strong house" full of maize that recently had been abandoned. While Ibarra's men held the town, the principal cacique from Topia sought out its disaffected residents, convincing them to accept peace and apparently the cacique's preeminence. After the cacique's power base had been restored, the cacique guided Ibarra through the **quebrada de Topia** to a point where the Spaniards could see "extensive plains and the smoke of towns". Ibarra unknowingly cast his sights on the province of Culiacan. Shortly thereafter the Governor and his army departed Topia for the coast, where they resumed their search for fame and fortune (Hammond and Rey 1928: 66-71; Mecham 1927: 131-133).

Aboriginal culture in the **Sierra Madre Occidental**. If we juxtapose the extant archaeological record, Obregon's brief comments, and the later observations of the missionaries, it is possible to visualize various aspects of native life in the Sierras at the time of the Conquest. This is true with respect to the Acaxee as well as the Xixime, Tepehuan, Tarahumara, and Zacateco. These **Serranos** all evolved a similar adaptation to life in the Sierras. The Acaxee, Xixime, and Tepehuan also shared elements of Mesoamerican culture that were assimilated prior to A.D. 1350-1400. It will be recalled that the Chalchihuites folk are thought to have disappeared at

this time, leaving the Loma San Gabriel, or Tepehuan, as the primary occupants of central Durango and southernmost Chihuahua. The movement of Mesoamerican peoples and ideas up the west coast of Mexico, and presumably into the Sierras among the Acaxee and Xixime, also is thought to have ended at around A.D. 1400, following Tarascan expansion in western Mexico.

With respect to population, neither Obregon's account nor the extant archaeological record provide data to estimate the aboriginal population of groups such as the Acaxee. At the turn of the seventeenth century, when the Jesuits began working in the Sierras, the Acaxee numbered between 12,000-16,000 (Perez de Ribas 1944: III, 17). However, evidence to be discussed in chapters 5 and 6 suggest that the Acaxee and other **Serrano** groups lost as much as 50% of their population during the 30 years or so separating the time of Ibarra and the founding of Jesuit missions in the Sierras. An aboriginal population of around 30,000 for the Acaxee is therefore suggested. A similar figure also can be inferred for the Xixime, who differed only slightly from the Acaxee in terms of culture, and who occupied a larger and no less productive territory (Sauer 1935: 22). If the population density figure for the Acaxee and Xixime (2.6 per sq. km.) is applied to the less forbidding territory that was held aboriginally by the Tepehuan and Tarahumara, then each of these groups numbered well over 60,000, aboriginally.

The population figures cited above are high relative to traditional estimates (e.g. Beals 1933: 4), most of which fail to incorporate the effects of Spanish-introduced disease. Similarly, many researchers have failed to appreciate the extent to which Old World diseases altered aboriginal

settlement systems. Traditionally, anthropologists have characterized native life in the Sierras in terms of isolated homesteads, small **rancherías**, or in the case of the Tarahumara, extensive use of caves (Pennington 1983: 286; Spicer 1962: 26). However, in 1531, Gonzalo Lopez found rancherías as well as villages and towns while scouting the Sierras for Nuno de Guzman¹⁰³ (Beals 1933: 19; Pacheco y Cardenas 1870: 450-457). From Ibarra's expedition we also have evidence of Topia. Although little was actually said about the size of the town, Ibarra noted that, from a distance, Topia seemed comparatively large, with many white, several-storied, flat roofed houses (Mecham 1927: 118-119). Obregon further noted that the town had a fortress that was large enough to quarter Ibarra's entire army of several hundred or more soldiers (Hammond and Rey 1928: 64-65). It will be recalled that the fortress had a stairway of stone and mortar, and contained "another house of three stories". During Ibarra's foray against the inhabitants of what appears to have been Canelas, the Spaniards also found a fortress and "strong house".

Some thirty years after Ibarra's entrada, the Jesuits noted the persistence of pueblos with public architecture. In an apparent reference to "strong houses", Perez de Ribas noted that some Acaxee pueblos had large, public houses (**otras mayores y de comunidad**) that were used as defensive retreats (Perez de Ribas 1944: III, 17). Father Santaren noted that the Acaxee "strong houses" were arranged around a plaza, in the center of which grew a zapote tree, where the Acaxee made offerings to what other sources indicate was their god of war (Alegre 1958: 80). The Jesuits also reported that some Acaxee settlements or pueblos had a "batey" or ball court, similar to that found in lead towns among the Opata (Alegre 1958: 89-91; Perez de

Ribas 1944: III, 33). Presumably similar structures were built by the Tarahumara, who also played the semi-sacred ball game (Pennington 1983: 287). Although the Tarahumara as well as the Tepehuan and Zacateco rarely have been portrayed as village or town dwellers, some members of each culture resided in nucleated settlements aboriginally. During his initial **entrada** beyond Zacatecas, in the fall of 1554, and then again in 1560, Ibarra found many large villages (e.g. Cein, El Baptismo, San Miguel, Avino) of Zacateco and Tepehuan Indians in central Durango (Mecham 1927: 61-62, 66-67, 69, f. 23). As late as 1638, Father Contreras likewise noted that there were innumerable Tarahumara gentiles living in villages along the Rio Balleza in southwestern Chihuahua¹⁰⁴. Contreras went on to note that the interior of the Tarahumara country also contained pueblos (AGN 1638: 286-287; *op. cit.*, Sheridan and Naylor 1979: 11).

Although villages and towns like Topia dotted the Sierras and eastern slopes of the Great Divide, small settlements, including cave-dwellings that were occupied by extended families (e.g. Perez de Ribas 1944: III, 159-161), were more common aboriginally. On several occasions Obregon mentioned or alluded to the Sierras containing small settlements and populations (e.g. Hammond and Rey 1928: 61, 68). The Jesuits likewise found that most Acaxee settlements as well as those of other **Serranos** consisted of small **rancherías** with houses of adobe, mud and stone, or unworked timbers, with roofs of sod, earth, or straw (Beals 1933: 6; Perez de Ribas 1944: III, 135-137). One of the most precise characterizations of native settlement systems in the Sierras was written by Father Alonso del Valle. In 1618, Del Valle penetrated the all but inaccessible gorge of Del Diablo, along the headwaters of the Rio Piaxtla. Del Valle noted that the inhabitants of the

gorge, the Hume (a branch of the Xixime), lived in 9 "pueblos". Each pueblo consisted of 4 or 5 rancherías, which, in turn, had 6 or 7 households (**vecinos casados**). The priest went on to note that the Hume lived in flat-roofed adobe houses ("**adobe y terrado**") with plastered and painted walls. In an apparent continuation of a tradition documented archaeologically for the Loma San Gabriel, the houses were arranged around a flat, well kept plaza, and were connected by what apparently were small wing-walls that provided a suitable vantage point from which to repel enemy attacks (DHM 1618: 96-97).

The idea that the Sierras lacked sizeable and permanent villages is based on the assumption that many **Serrano** groups like the Tepehuan were largely hunter-gatherers (Brand 1939: 90; Meham 1927: 126). Although the inhabitants of the Sierras relied on various wild resources such as honey, agave, deer, and fish — to name but a few — the principal occupation of most **Serranos** was farming (e.g. Perez de Ribas 1944: III, 135-137). Obregon's comment that the inhabitants of Topia harvested large quantities of corn, beans, and pumpkins (Hammond and Rey 1928: 66) is one of many references to native success at agriculture. From Obregon's account and later sources we know that the Acaxee and their neighbors farmed the upland slopes of the **barrancas** as well as the **barranca** floors (Alegre 1958: 77-78; Beals 1933: 5; DHM 1618: 96). Fields in the canyon bottoms apparently could be double-cropped (Pennington 1969: 65-66), and were planted with a wide variety of plants of the **tierra caliente**, including sugar cane, zapotes, guayava, chile, and cotton. Corn, beans, sage, and various types of melons were grown in fields or "**rosas**" on the steep and rugged sides of the canyons. In a good year, these upland fields in the Tarahumara reportedly

yielded maize at a ratio of better than 80-1 (Sheridan and Naylor 1979: 110). Still larger harvests must have been obtained by the Tarahumara and other **Serranos** that lived along the Rio Conchos, Nazas, and other rivers that drained the eastern slopes of the Sierras and the adjoining mesa central. According to Father Contreras, the Tarahumara along the Rio Balleza employed irrigation canals to produce abundant maize, so much that pack trains from Parra! regularly travelled to the valley for foodstuffs (AGN 1638: 286; op. cit., Sheridan and Naylor 1979: 11).

The production of food surpluses facilitated trade both within and without the Sierras. We know from Ibarra's expedition, in particular, that the Acaxee of Topia produced feather shields, feather crests of silver, and cotton clothing that were traded to the Tepehuan of the Valley of San Juan (Hammond and Rey 1928: 51). Obregon also mentioned that the Spaniards found chick-peas at Topia that had been acquired by the Acaxee from Culiacan, presumably through trade (Hammond and Rey 1928: 67). Old World crops probably were traded up into the Sierras along with salt (Perez de Ribas 1944: I, 250). Clothing of **pita**, a fabric made of agave threads, animal skins, shell, maize, parrot feathers, and peyote are a few of what must have been a long list of items that were traded throughout the Sierras (e.g. Alegre 1958: 84; Beals 1933: 10; DHM 1618: 96; Perez de Ribas 1944: III, 33, 135-137).

At the time of European contact, groups like the Acaxee, Tepehuan, and Tarahumara are thought to have had a very rudimentary socio-political organization (e.g. Merrill 1983: 293). Each hamlet in the Sierras is thought to have been a largely egalitarian and politically independent entity, governed to a limited degree by a headman and council of elders. Not all sources

agree, however, with this characterization. Obregon's comments regarding the "principal sayayn" of Topia certainly attests to Acaxee elites with considerable power and influence. More telling are the comments of the later Jesuits. Father Alonso del Valle, for instance, noted that the Hume nation was divided into 9 "pueblos" and approximately 50 **rancherías**, and was ruled by a "gobernador" who resided in the principal pueblo of Guaricame. The "gobernador" reportedly was obeyed by all the inhabitants of the gorge and was represented in each of the "pueblos" by what apparently were his own appointees (**particulares caciques**)¹⁰⁵. Another Jesuit source mentions a "petty king" ("**reyezuelo**") among the Xixime of Guapijuxe who reportedly had 17 **rancherías** under his dominion (Perez de Ribas 1944: III, 93-95).

In one of the earliest Jesuit accounts of the Acaxee¹⁰⁶, Father Hernando de Santaren reported that each Acaxee **ranchería** contained "sons, grandsons, and fathers" (**parientes**) (Alegre 1958: 78). This statement seems to imply that the Acaxee were organized in terms of patrilineal descent groups. If so, then probably the "principal cacique" of Topia and others like the "governor" and "petty king" of the Xixime were paramount lineage heads. These chiefs presumably organized the production and redistribution of food stuffs and other resources that were kept in the "strong houses" described by Obregon and later the Jesuits. It seems likely that the Principal chiefs, including the **sayayn** of Topia, also used their access to and control of material wealth to gain followers for military engagements. There were, in fact, numerous occasions during the seventeenth century (e.g. Alegre 1958: 87-89, 109-114; Perez de Ribas 1944: III, 34-41; 93-95) when native elites, often called **hechiceros**, assembled thousands of warriors in rebellions against the Spaniards. However, aboriginally, most military engagements seem to

have involved small-scale raiding, often for slaves, and specifically women¹⁰⁷ (Dunne 1944: 33; Perez de Ribas 1944: III, 137, 157-158). Perez de Ribas also attributed raiding by the Acaxee to their insatiable appetite for human flesh¹⁰⁸ (Perez de Ribas 1944: III, 18-19). For whatever reasons, raiding and warfare were widespread at the time of the Conquest, and often involved the use of fortified retreats and pyral communication systems (Beals 1933: 18; Perez de Ribas 1944: III, 39; Sheridan and Naylor 1979: 20, 21-23, 20). From Obregon's account as well as other sources we know the **Serranos** used a wide array of weapons, and wore "brilliant native trappings" into battle (e.g. Alegre 1958: 79-Beals 1933; Hammond and Rey 1928: 63).

In his brief comments regarding Topia, Obregon mentioned that the Acaxee had numerous idols, some of which were kept high up in the mountains and in caves (Hammond and Rey 1928: 68). From later sources, specifically the Jesuits, we know that idols were conspicuous features of Acaxee, Xixime, and Tepehuan religions. The idols frequently were carved in stone and wood, and often were representations of guardian spirits. The Acaxee had deer and rabbit idols, for example, to which offerings were made to prevent injury to crops (Alegre 1958: 81). Other idols were more like fetishes, and frequently were acquired as a result of a vision. The **anua** of 1596 (DHM 1596: 24) relates, for example, how a "wizard" among the Tepehuan had an idol of stone, like jasper, that was the size of a large apple. The wizard kept the idol covered with thin sheets of human head skin, apparently so others would not see the idol and be harmed. The wizard reportedly acquired the idol while sitting one day at the base of a hill. The stone rolled down the side of the hill to where the wizard was sitting. The stone then spoke to the wizard, telling him that he should care

for it, and that it would provide strength in battle, and that it had the power to give or cure sickness. The **bechizero** also reported that the idol provided strength and advice on many other matters.

While some idols had personal significance, the Acaxee and their neighbors also had idols that represented deities (Beals 1933). These communal idols bespeak Mesoamerican influence (Beals 1933: 22; Perez de Ribas 1944: III, 147-148), and may have originated with the Chalchihuites folk or the inhabitants of Aztatlan. Perez de Ribas (1944: III, 33) relates how one such idol was discovered by a priest who surprised a group of Acaxee that were playing the semi-sacred ball game. The idol, "in the shape of a man", was on one of the two terraces of the **batey** where the Acaxee were playing. On the opposite terrace the Acaxee had some peyote, which Perez de Ribas implied was used for religious as well as medicinal purposes. Although it is difficult to demonstrate, both the idol and the peyote may have been part of ceremonies to **Xochipilli** — the Mesoamerican God of youth, music, and games (Soustelle 1961: 22).

The Acaxee also had one or more idols representing a creator God, variously called Neyuncame (Alegre 1958: 81) or Meyuncame (Ribas 1944: III, 20). Perez de Ribas relates that there was an idol "much celebrated among the Tepehuan", which also may have represented a creator God. The idol was of stone, approximately 40 inches in height, with a realistic depiction of a man's head and a column for a body. The idol was kept at a shrine of sorts at the summit of a hill. Surrounding the idol were offerings of arrows, animal bones, ollas, herbs, tree branches, and other objects that the natives used to adorn themselves. Next to the idol was another smaller idol, also of stone, in the form of a caracol (Perez de Ribas 1944: III, 153).

In many Jesuit accounts of idol worship the term **hechicero** or wizard was used to describe those who cared for the idols. Although many "wizards" behaved much as shamans do, invoking their idols for assistance in curing sickness, some **hechiceros** functioned more like priests. Accordingly, these wizards acted as intermediaries of the idols, directing ceremonies and securing offerings from fellow villagers that were sacrificed to the Gods (DHM 1601: 71-72, 78-79; Beals 1933: 29-31). Since the Jesuits noted that some idols were inherited, and frequently belonged to wizards who also were caciques, the "principal chiefs" of the Acaxee and other **Serrano** groups may have fulfilled priestly functions, including those associated with idol worship. This possibility is suggested, for instance, by a report that the "petty king" of Guapijuxe "was revered by his followers as a God because of the lies he perpetrated through his practice of the devil's art" (Perez de Ribas 1944: III, 93-95).

In sum, Obregon's brief comments and those of other observers indicate that even the "inhospitable" Sierras were well populated at the time of the Conquest. If we stand back for a moment and reflect on the explorers' comments regarding the Greater Southwest as a whole, it is apparent that native life at the time of the Conquest was anything but simple or primitive. Although it is true that the explorers failed to find cities and kingdoms rich in gold, they did find permanent villages and towns that were well supplied with basic commodities and that were involved in extensive trade. It is also evident that native settlements often were governed by elites with substantial political and military influence. Indeed, in many areas of the Greater Southwest native peoples apparently were organized into chiefdoms. There is likewise no shortage of evidence that

native populations throughout the Greater Southwest had sophisticated religious systems to cope with the uncertainties of life. Unfortunately, the complexity of native belief systems and aboriginal culture, in general, often is obscured by the rapid and highly destructive changes wrought by smallpox and other maladies.

NOTES TO CHAPTER III

1. The sun was worshipped as a deity by native peoples throughout the Greater Southwest. Apparently the stories that were told by the Spaniards regarding their origins, specifically how they came from a distant land to the east, where the sun dwelled, led many natives to believe that the explorers were emissaries of the sun (Perez de Ribas 1944: II, 164). The Spaniards' armor, guns, and horses also may have convinced some natives that the Spaniards were more than mere mortals. For whatever reasons, the explorers frequently were addressed as "sons of the sun" (e.g. Cabeza de Vaca 1944: 62; Hammond and Rey 1928: 99, 201-202, 1940: 64, 131, 146-147).

2. This problem of identification has been compounded by the fact that numerous communities and native peoples that were described by the explorers were not mentioned or apparently were given different names by the later missionaries (e.g. Hedrick 1978: 231).

3. In a letter to Charles V of May 15, 1522, Cortes wrote at length of his efforts and plans to discover the long sought after route to the Indies (MacNutt 1908).

4. Cortes' problems began even before his kinsman had returned from Nayarit. In 1524, Cortes was summoned to Honduras to crush a mutiny by one of his lieutenants, Olid. Absent for two years, Cortes returned to Mexico in 1526, only to find others more powerful had questioned his leadership in both Mexico and Spain. Fearing what might happen should he fail to respond to the charges of his critics, particularly those across the Atlantic, Cortes departed for Spain in 1528. There he remained for several years, successfully answering the charges of his opponents, but losing the tactical advantages that previously placed him at the forefront of exploration and conquest. After his return to Mexico in 1530, Cortes was forced to concentrate on exploring by sea the northwest coast region. His efforts in this regard were largely unsuccessful, save for his discovery of California (Bancroft 1884: 40-53).

5. Guzman previously served and retained the title of Governor of Panuco, a position he assumed following his arrival in New Spain in 1526 (Carrera Stampa 1955: 40). While serving in Panuco, Guzman carried out numerous injustices against the native population and in defiance of Spanish laws, principally through slave profiteering. Unfortunately, neither the King nor the Council of the Indies apparently were aware of Guzman's malfeasance at

the time of his appointment as President (Bancroft 1883: 263-268).

6. Guzman and the four **Oidores** of the **Audiencia**, all adversaries of Cortes, instituted hearings and "reforms" that were designed to deprive Cortes and his followers of various holdings and privileges acquired during the Conquest (Bancroft 1884: 40-53).

7. The province of Nueva Galicia originally encompassed what are today the states of Jalisco, Nayarit, Sinaloa, and Zacatecas.

8. The accounts of Guzman's expedition either fail to mention or give different estimates of the size and composition of his army. An average of the competing figures indicate approximately 7,000 Tlascaltec and Aztec soldiers accompanied Guzman (see Bancroft 1883: 294, f. 46).

9. Brand (1971: 651-653) has noted a number of omissions, errors, and contradictions in Tello's **Cronica Miscelania** (1891) that raise doubts about the reliability of Tello as a source.

10. During the early colonial period a league equalled approximately 2.6 miles (Polzer et al. 1977: 39; West 1949: 120, f. 9).

11. The precise cause of the epidemic is not readily apparent from the documents. In chapter 5 we will take a closer look at the epidemic and its consequences.

12. A chronicler of Coronado's expedition to Cibola, Castaneda (Hammond and Rey 1940: 195), reported that Guzman learned of the Seven Cities from the son of a trader from the Valley of Oxitipar. Guzman learned that the trader used to travel forty days to the north, to some very large pueblos where he traded rich-colored plumes for gold and silver.

13. San Miguel de Culiacan, Compostela, and Guadalajara all were relocated on one or more occasions during the sixteenth century (see Brand 1978).

14. Torquemada, like many historians and cartographers of his time, may have included southern Sinaloa and northern Nayarit in the province of Culiacan.

15. In May, 1532, Cortes had Diego Hurtado de Mendoza sail with two ships from Acapulco. One ship went aground in the Bay of Banderas and was seized by Guzman; the other was shipwrecked and its crew killed near the mouth of the Rio Fuerte (Bancroft 1884: 40-45).

16. Internal evidence suggests that Jorge Robledo authored the Second Anonymous Report. In his narrative, Guzman notes that after reaching Nebame he sent Robledo down the Yaqui to locate a road that might lead north along the coast (Hedrick and Riley 1976: 26). The Second Anonymous Reporter seems to imply that he led this reconnaissance, stating that "...I went with eight mounted men toward the sea...Here I saw clearly that the range dropped sheer to the sea. Since there was no road,...I returned" (Hedrick and Riley 1976: 49-50).

17. Neither account of the expedition gives figures on its size and composition. Both do mention cavalry and infantrymen, and Guzman at one point in his narrative mentions "Chichimecas" (Hedrick and Riley 1976: 24), presumably Indians from southern Mexico who accompanied him.

18. The precise location of Cinume is not indicated in either account of Guzman's entrada, although Guzman and the Second Anonymous Reporter both seem to indicate that Cinume was upstream from the mouth of the Rio Mocerito (see Hedrick and Riley 1976: 34, f. 4).

19. Petatlan was probably near the modern town of Sinaloa, and was visited in 1531 by Samaniego, while reconnoitering for Nuno de Guzman (Sauer 1932).

20. Some five years after this statement was made, Castaneda, who was with Coronado, noted that the Petatlan river had a large population living in pueblos that extended from the mountains to the sea (Hammond and Rey 1940: 249-250).

21. The Second Anonymous Reporter noted it was 20 leagues from the Rio Petatlan to the Rio Tamachola (Hedrick and Riley 1976: 40) — a good approximation of the distance between Petatlan (modern Sinaloa) and the lower Rio Fuerte. Although Guzman in his narrative says the scouting party "went four leagues in three days' journey", or presumably 12 leagues (Hedrick and Riley 1976: 18), on the return trip Guzman implies that it was @20 leagues from Tamachola to the Rio Petlatla River (Hedrick and Riley 1976: 31).

22. The explorers' statements regarding the size and number of Cinaloan settlements as well as their military prowess agree with the later reports of Obregon (Hammond and Rey 1928: 143-147) and the Jesuits (e.g. Perez de Ribas 1944: I, 174).

23. Mayomo probably was near modern Camoa, which is roughly 10 leagues from the ridge of the sierras to the east — the distance travelled by a scouting part that was sent by Guzman from Mayomo (see Hedrick and Riley 1976: 29).

24. The village of Yaquimi was clearly some distance upstream from the main Yaqui population, and was probably a short distance north of Cocorit (Sauer 1932: 12).

25. Although Sauer (1932: 12) equated Nebame with Cumuripa, this inference was based on the assumption that Cumuripa was the southern-most Pima settlement. Historical evidence indicates, however, there were other Pima Bajo settlements below Cumuripa, the southern-most being Buenavista (See Pennington 1980: 26-27).

26. Warfare between the Yaqui and Nebomes (Pima Bajo) continued well into the seventeenth century. Both groups were at war when Perez de Ribas and Tomas Basilio began missionizing the Yaqui in 1617 (HHB 1617).

27. The ship apparently was commanded by Diego Hurtado de Mendoza, and

was one of two that had been despatched from Acapulco by Cortes to explore the coast (see footnote 15). Guzman learned from several natives that the ship's crew was killed after coming ashore the previous year (1532), and that subsequently the ship itself was driven aground and destroyed (Hedrick and Riley 1976: 40-41).

28. Obregon (Hammond and Rey 1928: 257) also alluded to the presence of large towns among the Yaqui, noting one in particular, Yaquimi, which he described as being situated amid a luxuriant grove, a fourth of a league in extent.

29. In 1593, Father Martin Perez also noted that the Cahita lived in wattle and daub structures with roofs made of reeds (Shiels 1934: 124). This house type as well as structures of puddled adobe, which apparently were common in the foothills, may have been preferred by some because it offered greater protection during winter.

30. In an early description of northern Sinaloa, Fathers Tapia and Perez noted (AGN 1593; Shiels 1934: 110) that the Cahita built their ramadas by the front door of their houses, and would store maize on top, "in the manner of a trophy".

31. Ceremonial sponsorship among the Cahita was first acknowledged by Fathers Tapia and Perez, when they noted in 1593 how the Cahita prized certain ceremonies that enabled individuals to become members of families other than their own (AGN 1593; Shiels 1934: 111).

32. The Jesuit historian, Albizuri (HHB 1633), reported that the natives had no arts or trade because they were always idle. Others, such as Perez de Ribas (1944: I, 130, II, 122) attributed the lack of trade to constant warfare.

33. Obregon (Hammond and Rey 1928: 102) also may have alluded to specialized pottery production when he noted that the natives at the mouth of the Rio Fuerte (Guasave) made "good pottery".

34. This inference is supported by Ekholm's (1942) work at the Guasave Site on the lower Sinaloa River. Some 17 pendants and 82 turquoise beads were found at the site that probably originated in the American Southwest (Riley 1976: 5).

35. The European preoccupation with monarchy is reflected in a number of Jesuit discussions of Cahita socio-political organization. Writing in 1593, Fathers Tapia and Perez noted that "The whole nation has no King or Lord except in times of war..." (AGN 1593; Shiels 1934: 109). Perez de Ribas prefaced his otherwise insightful comments about Cahita socio-political organization with the observation that "They have neither laws nor Kings, nor do they have any form of authority or political government to punish them for their vices and sins" (Perez de Ribas 1944: I, 133). Similar statements can be found in Albizuri (HHB 1633; Shiels 1934: 113) and later Jesuit Historians (e.g. Treutlein 1949).

36. Perez de Ribas' statement reads, "los que los tienen por hijos entre ellos".

37. In an apparent reference to the "principal chief", Beals (1943: 56) points out that each day the chief or his appointed speaker addressed his followers, exhorting them to diligence and hard work.

38. Perez de Ribas (1944: II, 227) pointed out that having more than one wife meant having more children, something that was desired because it provided a basis for political power.

39. The Jesuits frequently noted or alluded to the caciques and **principales** being religious leaders or **hechiceros** (e.g. Beals 1943: 61).

40. **Correr el palo** was one of several games that were popular with the Cahita and other groups in northwest Mexico. The game involved two teams, usually from different villages, each of which raced to a designated point, kicking a large piece of wood as they went. The first team to reach the pre-arranged goal won (Beals 1934: 34-35; Perez de Ribas 1944: I, 136).

41. The worship of specialized deities could have originated with the ancestors of the Ahome, who were related to the Guasave. At the time of Jesuit contact, the Ahome had an oral tradition relating how their ancestors had migrated to Sinaloa from the south, presumably from the Tahue or Totorame region (Perez de Ribas 1944: I, 281). Interestingly, the Guasave worshipped a number of deities, including one that was represented by an idol of stone, which the Jesuits described as being approximately 33 inches tall, "in the form of a pyramid with certain characters carved in it that were unintelligible" (AGN 1596: 64-67; op. cit., Perez de Ribas 1944: I, 187).

42. Very little is actually known about this rebellion. The Second Anonymous Reporter gives precious few details about the uprising (Hedrick and Riley 1976: 50-53).

43. According to Oviedo y Valdes (Hedrick and Riley 1974: 65), by the spring of 1536, at least 3 raids had been conducted as far north as the Rio Yaqui.

44. Besides these two long narratives, Cabeza de Vaca wrote a short **Relacion** that recounts what happened to the survivors of the Narvaez expedition up till the time of their shipwreck off the coast of Texas (see Hedrick and Riley 1976).

45. Cabeza de Vaca and his companions began their odyssey along the west coast of Florida in April, 1528. At this time, the four would be conquerors came ashore near Tampa Bay, along with several hundred other Spaniards, led by Panfilio de Narvaez. Under the terms of a contract drawn up with the Crown, Narvaez had agreed to conquer and then govern the Gulf Coast province of las Paimas, north of Panuco. After sailing from Spain and suffering from storms and later desertions at Hispanola and Cuba, Narvaez's battered fleet finally dropped anchor near Tampa Bay. Once ashore, Narvaez despatched his ships up the coast with instructions to locate a harbor and then proceed to Cuba for supplies. This was the first of many blunders, as the ships' pilots were not only unable to locate a harbor, but were unable to re-establish contact with the army. After months of skirting the coast looking for signs of their compatriots, Narvaez's pilots departed for Mexico,

leaving the army stranded on the mainland (Cabeza de Vaca 1944; Hallenbeck 1940; Hedrick and Riley 1974, 1976: 1-15). Narvaez in the meantime was busy chasing native reports of lands rich in gold. For several months Cortes' arch rival led his troops inland until finally hunger and Indian warriors drove the Spaniards back to the coast and the mouth of the Apalachicola River. Here the army remained from June through part of September, 1528, building 5 crude boats that they hoped would carry them safely to Panuco. The boats put to sea in late September, and after two months, were wrecked on the coast of Texas. During the next year the survivors dwindled to the point where only a fraction of the 250 men who sailed in the makeshift armada were still alive. After another year or two, only five were left, all of whom were enslaved by Indians on Galveston Island and the nearby mainland. One of the survivors, Cabeza de Vaca, reportedly showed some skill as a trader, and was allowed by his Indian captors to travel about freely. During his travels, Cabeza de Vaca was able to locate three of his fellow Christians who were willing to attempt an escape. A plan was finally put into effect in October, 1534. After fleeing their captors near present day San Antonio, Texas, the three Spaniards and Esteban headed north and then west across southwestern Texas, eventually reaching the Rio Grande (Cabeza de Vaca 1944; Hallenbeck 1940; Hedrick and Riley 1974, 1976: 1-15).

46. Many researchers have inferred that the four Christians reached the juncture of the Rio Grande and the Rio Conchos in what is known as the La Junta area (see DiPeso 1974: IV, 56). This inference has been based largely on statements made by members of Espejo's expedition to New Mexico in 1583 (Hallenbeck 1940: 209). Several participants in this later expedition reported that they were told by natives of the La Junta area that four Christians who matched the description of Cabeza de Vaca and his companions passed through the area many years earlier (Hammond and Rey 1929: 62; Pacheco y Cardenas 1871: 173). It is not altogether certain, however, that Espejo or his Indian informants were referring specifically to the immediate La Junta area, rather than some other point above or below the juncture of the Rio Grande and the Rio Conchos. As Hallenbeck (1940: 211) has noted, only four years after Cabeza de Vaca and his party reached the Rio Grande, members of Coronado's expedition encountered native peoples who also purportedly met Cabeza de Vaca and his party. Significantly, the Indians contacted by Coronado's men were living to the north and east of La Junta, apparently in northwestern Texas (Hallenbeck 1940: 211). There are several additional reasons for believing that Cabeza de Vaca and his companions did not reach the Rio Grande about its juncture with the Rio Conchos. Neither Cabeza de Vaca's account or the Joint Report mention or allude to the Rio Grande being reached at or near the juncture of another river. Rather, Cabeza de Vaca (1944: 59) noted that they reached the Rio Grande at a point where it flowed between mountains, a statement that also is at variance with the low relief of the La Junta region (Hallenbeck 1940: 199-215). Perhaps the most important reason for believing that Cabeza de Vaca and his companions did not reach La Junta is that the explorers' ethnographic observations differ markedly from archaeological and other historical data regarding the Patarabueye and other Jumano speaking Indians who inhabited the La Junta region. Neither of the explorers' accounts, for example, mention large pueblos with adobe architecture — precisely what the explorers' should have noted had they reached the juncture of the Conchos and Rio Grande (Kelley 1952, 1953). Had Cabeza de

Vaca observed adobe structures he probably would have made note of this particular architectural form, as he subsequently did with reference to the Opateria or "land of permanent houses" (see Cabeza de Vaca 1944: 61). Cabeza de Vaca's statement that the natives erected houses for their guests suggests that the houses were constructed of perishable materials other than adobe (Cabeza de Vaca 1944: 60). This inference is borne out by the joint report, wherein "huts" are specifically mentioned (Hedrick and Riley 1974: 58). Both accounts (Cabeza de Vaca 1944: 61; Hedrick and Riley 1974: 59-60) further state that the natives lacked pottery, and cooked their food in gourds in which heated stones were placed. As Kelley (1952: 263, f. 10) has noted, these statements are at variance with evidence from the La Junta region, where pottery was manufactured as early as A.D. 1200.

47. Hallenbeck (1940: 219-220) thinks *chacan* may have been crushed and compacted cakes or balls of juniper "berries".

48. Several early Jesuits reports (see AGN 1653a, 1678) noted that the Suma and the Opata of northern Sonora had close ties involving trade. The Franciscan, Salmeron (1966: 94-95), also noted that the Suma ("Gorretas") and the Opata ("Los Cojoyas") had amicable relations and that Opata were renowned for their skill at weaving cotton.

49. Many researchers, particularly those who believe the four Christians reached the Rio Grande at La Junta, have argued that Cabeza de Vaca and his party left la Junta and travelled west, up the Rio Conchos, and then across the Sierra Madres, into southwestern Chihuahua. Those who have favored this routing frequently have cited a passage from Cabeza de Vaca's *Nafragios* wherein Cabeza de Vaca implies that he and his companions did in fact travel to the west, rather than taking the road to the north that was recommended by the Jumano:

After two days had passed while we were there [among the Jumano], we decided to go in search of the maize [country], and we did not want to follow the road of the bison, because it was toward the north, and it was for us a very great detour, because we always held that going in the direction of the sunset we would find what we desired; and so, we went on our way, and traversed all the land as far as the South Sea; and it was not enough to stop us the great fear we had of the hunger we would have to experience, as in truth we did experience, all of those 17 days travel of which we had been told [by the Jumano]. During our entire journey up river we were given many bison hides, and we did not eat their fruit; we sustained ourselves each day mostly with a handful of dried deer meat, a supply of which we always tried to maintain. And so we survived the 17 day journey, at the end of which we crossed the river, and continued travelling for another 17 days (Cabeza de Vaca 1944: 61).

Although the first part of the above passage strongly suggests that Cabeza de Vaca and his party left the Rio Grande, travelling in a westerly

direction, Cabeza de Vaca stated in the last 10 lines of the above passage that he and his companions experienced the 17 day journey of hunger which the Jumano said characterized the trail that led north, en route to the maize country. Cabeza de Vaca also mentions receiving many bison hides and not eating the natives' "fruit", which also were mentioned by the Jumano in their description of the road that went north (Cabeza de Vaca 1944: 60). It can be argued, therefore, that the above passage can accommodate either of the two competing routes proposed for Cabeza de Vaca and his party. There are several reasons, however, for believing the four Christians actually followed the road north that was suggested by the Jumano. First, had the four actually been at La Junta, and had they then travelled west up the Rio Conchos and over the Sierra Madres, surely they would have mentioned crossing such difficult and mountainous terrain. Neither Cabeza de Vaca nor the authors of the Joint Report mention crossing the Sierras (Sauer (1932: 16). This silence is particularly surprising, given that Cabeza de Vaca and his companions would have crossed the mountains during the height of the winter, a dangerous task that should have been avoided, never mind recorded. Indeed, in 1565, Ibarra's expedition became lost and almost perished not far from where many believe Cabeza de Vaca and his party crossed the mountains. Obregon, chronicler of Ibarra's expedition, did not fail to recall how Ibarra's army suffered terribly, luckily escaping death (Hammond and Rey 1928: 241-245). Last but not least, while Cabeza de Vaca was vague in his *Naufragios* about the route followed after reaching the Rio Grande, the Joint Report clearly states that the 3 Spaniards and Esteban *did* follow the road to the north, travelling up the Rio Grande for fifteen days, and then travelling another 20 days to the west, finally reaching the maize country and the land of permanent houses (Hedrick and Riley 1974: 61).

50. The route outlined here differs from that proposed by Sauer and Hallenbeck. Because of drought and a presumed lack of drinking water in the region about the Chihuahua-New Mexico border, both Hallenbeck (1940: 218-219) and Sauer (1932:15-16) have inferred that the four Christians ascended the Rio Grande well into New Mexico, crossing the Rio Grande near Rincon or Mesilla. From here the would be explorers are thought to have headed west, skirting the Colorado Plateau into southwestern New Mexico and southeastern Arizona, whence they continued south into northeastern Sonora. Although this route appears reasonable, neither Cabeza de Vaca or the authors of the Joint Report mention or allude to travelling north, west, and then south, as Sauer and Hallenbeck have suggested (see Hallenbeck 1940: 223, 231). There is also some evidence that the Chihuahua-New Mexico border region may not have been as impenetrable as Sauer and Hallenbeck have inferred. Specifically, mention already has been made in footnote 48 of Salmeron's (1966: 94-95) remarks about the Oyata along the headwaters of the Rio Bavispe (Los Cojoyas) and the Suma of Carretas (Gorretas). Salmeron noted that the Suma and Oyata travelled together over to New Mexico to "see the Spaniards", presumably as they passed by El Paso. Father Juan Ortiz Zapata (AGN 1678: 256) also noted that the Suma, Janos, and Concho frequently travelled to Oyata villages in northeastern Sonora, apparently crossing the New Mexico-Chihuahua border area. Also, it apparently was in northern Chihuahua that Ibarra's expedition encountered some "Querecho" Indians that alluded to Cabeza de Vaca and his party having passed through the area many years earlier (Hammond and Rey 1928: 201-202). It is arguable, therefore, that Cabeza de Vaca and his

companions ascended the Rio Grande only as far as the Ei Paso area, and from here, were led by their Jumano or Suma guides across the border region into northeastern Sonora. Although it is difficult to be precise about the location of the first villages of the "land of permanent houses", they clearly were Opata settlements in northeastern Sonora. Sauer (1932) and Hallenbeck (1940) both believe the villages were in the Rio Fronteras basin. It seems more likely, however, that the villages were along the Rio Bavispe, given that the four Christians crossed the New Mexico-Chihuahua border region.

51. The Joint Report states that Cabeza de Vaca and his party were 8 months in the mountains prior to reaching Corazones (Hedrick and Riley 1976: 62). It is not altogether apparent what this statement means. The would be explorers appear to have first entered the "land of permanent houses" in January, 1536, as suggested in part by Cabeza de Vaca's (1944: 65) comment that the "land of permanent houses" was a hot country, so much so that it was hot there in January. Corazones apparently was reached in February, 1536, and the Villa of San Miguel in April, 1536 (DiPeso 1974: VIII, 74).

52. Not all scholars agree with Sauer's identification of the location of Corazones (see Reff 1981). DiPeso (1974: IV, 90), in particular, has criticized Sauer's identification of Corazones as well as Sauer's routing of Cabeza de Vaca and later explorers. However, DiPeso mistakenly attributes to Sauer the statement that Corazones was at or near Ures, and then proceeds to criticize Sauer and his routing of the Coronado expedition, which also visited Corazones. Contrary to what DiPeso asserts, Sauer's Corazones (at La Puerto del Sol) is 9.4 leagues from "Senora" (Baviacora), and agrees nicely with the 10 league distance given in the **Relacion del Suceso**. Locating Corazones at or near La Puerta del Sol also agrees with Coronado's statement that Corazones was five days distant from the sea, and that he and the vanguard of his army took 35 days to reach Corazones and another 41 days to reach Cibola. These estimates indicate Corazones was about half way to Cibola (Hammond and Rey 1940: 162-165). Several chroniclers of the expedition also made this point, noting that Corazones was approximately 150 leagues from Culiacan (e.g. Hammond and Rey 1940: 284, 250). Significantly, DiPeso's Corazones, which he identified with the modern day Rancho Tesocoma in the middle Cedros Valley, is only 109.8 leagues from Culiacan (DiPeso 1974: IV, 90-91).

53. While at Corazones, Coronado and his vanguard also were visited by what were most likely Seri Indians. After Coronado's main army reached Corazones, a search party was sent to the coast that returned with an Indian "so large and tall that the biggest man in the army did not come up to his chest. It was said that, on the coast, there were other Indians still taller" (Hammond and Rey 1940: 209). These statements clearly refer to Seri Indians, who have long been noted for their great size as well as their myth of giants who once waded across the Gulf of California (Bowen 1976a, 1983: 237).

54. Although the Joint Report indicates that the distance between Corazones and the flooded river was 30 leagues, Cabeza de Vaca (1944: 63) stated that it was only a days journey. As others have pointed out (e.g. DiPeso (1974: IV, 62), it is difficult to reconcile these estimates. Similarly, it cannot be

determined from the explorer's accounts precisely at what point along the Yaqui the river was crossed. The author is inclined to believe that the ford was near Cumuripa as opposed to Sayopa, as others have argued (Pennington 1980: 11; Sauer 1932: 18). Cumuripa is, as the Joint Report suggested, approximately 30 leagues from Corazones (La Puerta del Sol). Also, Cumuripa seems a more likely location for the Christians to have learned, as they did, of Spanish slave raiding; Sayopa would appear to have been too far north. Indeed, it may have been Diego de Guzman's expedition, which apparently ascended the Yaqui as far as Cumuripa, that the natives were referring to when the told Cabeza de Vaca and his companions about a Spanish slave raiding party.

55. Although few natives were encountered on the road north, this was reportedly because many natives had left their villages along the Rio Grande to hunt bison out on the plains (Cabeza de Vaca 1944: 59; Hedrick and Riley 1974: 60-61).

56. This hypothesis is supported by the explorers' observation that the Jumano were heavily involved in bison hunting and lacked pottery, using instead a stone-boiling technique to cook (Cabeza de Vaca 1944: 60-61; Hedrick and Riley 1974: 59-60).

57. Kelley (1952: 266, f. 21) has taken issue with Espejo's figure of 10,000, noting that it "is certainly excessive". Kelley does not specify, however, why Espejo's estimate is excessive. Indeed, Kelley's own discussion of the numerous historic pueblos in the La Junta region, some with upwards of 500 residents, would seem to lend support to Espejo's estimate.

58. During the late 1800's, Bandelier found the Opata of the Rio Bavispe had an oral tradition regarding wars between the Opata and Casas Grandes (Lange and Riley 1970). It is tempting to think that these wars were a consequence of attempts on the part of the merchant-priests at Paquime to put a stop to incipient competition by Opata potters in northeastern Sonora, where Chihuahuan polychromes are evident in large quantities at many prehistoric sites (Sauer and Brand 1932). Similarly, although Kidder et al. (1949) thought the sudden abandonment of Animas Phase sites in southwestern New Mexico may have been due to the Apache, a more reasonable hypothesis, assuming some form of incursion, is that forces from Paquime invaded the region to destroy competing producers of polychrome pottery and perhaps finished turquoise.

59. The rise of competing centers may have been a predictable consequence of certain "structural" limitations of Mesoamerican colonialism (Pailes and Reff 1985). Specifically, unlike modern or historic examples of colonialism (Smith 1976), Paquime lacked a cost-effective means of transport that would have enabled it to import basic commodities from Mesoamerica. Lacking a source of goods that could be introduced in competition with local handicrafts, and that could serve to undermine native control of the means of production, the merchant-priests were forced to rely on the production and exchange of luxury and ceremonial goods to extract a "profit" from distant consumers. Although for 200 years Paquime benefited greatly from this commerce, the marketing of luxury and ceremonial goods invariably stimulated the growth and development of distant local economies —

economies that implemented new organizational and productive strategies to generate surpluses to trade with Paquime. As noted, there is also some evidence that, in time, this growth and development led to the appearance of alternative producers of luxury and ceremonial goods.

60. It should be noted that there have been many anthropologists, beginning with Bandelier (Lange and Riley 1970: 276-278), that have postulated that the Opata emigrated to Sonora from the American Southwest or Chihuahua during the late prehistoric period. However, as noted, recent archaeological data indicate that the Opata occupied the Sonora Valley as early as A.D. 1000.

61. The only "precise" population estimate made by the explorers was Obregon's observation that "Senora" had over 20,000 inhabitants in an area thirty leagues in length and 20 in breadth, apparently including the Sonora Valley from Mazocahui to Arispe ("Guaraspi"), and the Moctezuma Valley from Oposura to Cumpas ("Cumupas") (Hammond and Rey 1928: 164).

62. Many researchers, including Sauer (1932: 41) and DiPeso 1974: IV, 108), have equated Oera with Nuri. It is clear from Obregon's account, however, that Oera was a Pima Bajo settlement of considerable size (2,000 houses) that bordered the lands of the Batucos, with whom the inhabitants of Oera were at war. Throughout the historic period Onabas constituted the largest Pima Bajo settlement in southern Sonora. Its location relative to the Eudeve Opata of Batuc make it a logical equivalent for Oera. By contrast, Nuri was never a large settlement, nor was it a Pima Bajo settlement, aboriginally (HHB 1617). Nuri is also too far south to accord well with Ibarra's journey from Oera to the Sonora Valley.

63. A fragmentary **vocabulario** or dictionary of what appears to have been Tehuima, the principal dialect spoken by the Opata, lists **cuvabot** for "canal of wood". A verb form of **cuvabot** (**cuvalotam**), "to make a canal of wood", is also given (AHH n.d.: 21).

64. The Opata, and perhaps the Pima Bajo as well, apparently conducted trade at 2 levels. Several sources suggest that the Opata had individuals who may have specialized in long-distance trade, and who were afforded military escorts (AHH n.d.: 19; Nentvig 1764: 112-113. Trade also was conducted by male adults through the institution of "norawa". This institution also was common among the Tarahumara (Bennett and Zingg 1935: 158), and involved two men who forged close ties of friendship through regular trade. Father Juan Nentvig (1980: 67) noted that the Opata took the **noragua** quite seriously, and if an individual's **noragua** asked for something he didn't have, often he would beg the priest for it in order to satisfy his **noragua's** request.

65. Riley (1978, 1979) recently has suggested that the Opata and Pima Bajo were organized into "statelets", as opposed to chiefdoms. It is not altogether clear, however, precisely what is meant by the term "statelet". Implicitly, Riley seems to be suggesting that kinship was not of great significance in terms of power and political process among the Opata and Pima Bajo. The importance of kinship is apparent, however, from observations like Perez de Ribas' (1944: II, 227) comment that having many sons, kinsman,

and descendants was the foundation for political power.

66. Father Joseph Och (Treutlein 1965: 131), writing in the mid 1700's, also may have alluded to the existence of totemic clans when he noted that the Opata did not kill certain types of ants and other animals, including some that were harmful and dangerous.

67. Like the Tallensi (Fortes 1945), the Opata apparently gave women a prominent role in the affairs of their lineage of birth. This is perhaps what Cabeza de Vaca (1944: 62) was referring to when he noted that the women in the land of permanent houses were treated with more respect than in any other area of the Indies. Later the Jesuits also noted that Opata women were treated better than women in other native societies (e.g. Nentvig 1980: 67).

68. Father Marcos del Rio (AGN 1647a) noted that the "vezinos" or male heads of households of Gusavas were related by marriage ("emparentados") to those of Cumupas, Sonora, and other Opata living to the west. It was apparently the Opata of the Sonora Valley, Cumupas, and Guasabas that forged an alliance and attempted to plunder Ibarra's expedition in 1565 (see Hammond and Rey 1928: 162-195).

69. In keeping with the basic tenets of the civilization-savagery myth (Jennings 1976: 146), Southwesternists have tended to think of native warfare as being somewhat irrational or pointless. Spicer (1962: 386), for instance, attributed warfare among groups like the Opata and Pima Bajo to a desire for supernatural power, pleasure, and excitement.

70. In the late 1700's, Father Ignaz Pfefferkorn (Treutlein 1949: 84) noted that the mission population of Sonora obtained kitchen salt from the coast near Bisanic and Sonoita, and the coast near the debouchure of the Mayo and Yaqui Rivers. Aboriginally, inland groups like the Opata probably raided Pima villages, including those near Bisanic and Sonoita, for salt. In his chronicle of the Ibarra expedition, Obregon noted that the Opata of the Sonora Valley as well as the Pima Bajo of Oera (Onabas) both lacked salt, and waged war against the people of the coast for it. Obregon also noted that the Eudeve Opata of Batuco had access to what appears to have been rock salt, and that other groups fought with the Batucos for it (Hammond and Rey 1928: 164, 256-257). The Opata of Bacadeguachi also fought with other Opata groups for control of rock salt deposits near Bacadeguachi (Nentvig 1764: 113; Treutlein 1949: 256-257).

71. Obregon noted, for instance, that the inhabitants of Senora waged wars on their neighbors to acquire women slaves and wives, and that the Pima Bajo of Oera (Onabas) had many slaves in wooden stocks that were exchanged for blankets, provisions, feathers, and especially salt (Hammond and Rey 1928: 161, 164). Reportedly during raids on enemy villages the Opata spared the lives of women and children, often scorching parts of their bodies with a burning stick (Nentvig 1980: 64). This custom may have been an expedient way of branding captives, and thus keeping track of them until they were grown and of marriageable age. Apparently when a slave became an adult or married the owner lost all rights to his captive (Pennington 1980: 215).

72. At the time of the Conquest the Opata were divided into 2 language groups, the Eudeve and the Opata proper (Johnson 1950). The Eudeve Opata occupied the middle San Miguel River Valley, the lower Rio Yaqui around Batuc (Batucos), and the Matape River Valley (Ayvinos). Although Pennington (1980: 10-11) believes the Eudeve were distinct from the Opata, the only distinction the Jesuits or other Spaniards noted was in terms of language. Father Juan Nentvig (1980: 4, 54), for example, stated that Eudeve and Opata languages "differed but slightly", and that "The Eudebes use a dialect as similar to the Opata language a Portuguese is to Castilian or Provençal is to French". Although the origins of this dialect difference are unknown, the exploration chronicles as well as the later Jesuit materials indicate that some Eudeve, particularly the Batucos, did not get along with their Opata neighbors in the Rio Sonora Valley (AGN 1630a; Hammond and Rey 1928: 256-257; 1940: 273).

73. In his *Historia*, Las Casas noted that the inhabitants of "Senora" sacrificed animal hearts and had "very tall stone and mud temples for idols and for the entombment of principal personages" (O'Gorman 1967: I, 281). Las Casas' observations are not supported by recent archaeological research in the Sonora Valley; no tall, mud and stone temples, idols, or tombs have been found. Las Casas' observations regarding tall stone and mud temples may refer to the Pimeria Alta and its "Great Houses", and are based on information supplied by Fray Marcos de Niza (see O'Gorman 1967: II, 183).

74. Perez de Ribas mistakenly attributed this incident to Father Olinano.

75. Although Riley (1979) has suggested that these shrines were an outgrowth of the seated burial tradition at Casas Grandes, seated burials in caves, accompanied by offerings, also occurred among the Cahita (Perez de Ribas 1944: I, 226), and apparently were reserved for elites in Nayarit (Mota Padilla 1924: 325).

76. According to Cabeza de Vaca (1944: 62), after the four Christians crossed the Rio Grande, Esteban did all the conversing with native peoples about which roads to take and other matters of importance. Esteban was therefore the most knowledgeable, and presumably, the best guide for any additional explorations of the lands beyond Nueva Galicia. Mendoza apparently realized this and sent Dorantes 500 pesos on a silver tray as payment for Esteban. Dorantes refused the money, allowing Esteban to serve the Viceroy without remuneration (Hammond and Rey 1928: 8).

77. Fray Marcos came to Mexico City in April of 1537, after serving for six years in Santo Domingo, Guatemala, and Peru. At the time he was introduced to the Viceroy by Bishop Zumarraga, Fray Marcos was the Vice-Commissary of the Franciscans, the second highest Franciscan superior in the New World (Bolton 1949: 17-19; Undreiner 1947: 421, f. 17).

78. Coronado was appointed Governor of Nueva Galicia in 1538, and succeeded Perez de la Torre. With Fray Marcos, Fray Onarato, and Esteban, Coronado and a small detachment of cavalry left Mexico City in the fall of 1538 for the Villa of San Miguel, the starting point for the friars' expedition. While en route to San Miguel, Coronado was forced to quell native uprisings near Guadalajara, Compostela, and the Villa of San Miguel.

After doing so he turned his attention to Fray Marcos' expedition, securing 80 Indians from Petatlan and Cuchillo, along the Sinaloa River. The natives agreed to escort the friar in return for a promise that their towns would no longer be raided by Spaniards from San Miguel. Other natives who came south with Cabeza de Vaca and who were subsequently enslaved by the residents of San Miguel, also agreed to accompany Fray Marcos, after they were freed by order of the Viceroy (Hammond and Rey 1940: 35-53)

79. In his account, Fray Marcos mentions recording the names of islands and settlements in "another paper", presumably in a more detailed report that remains to be discovered (Hammond and Rey 1940: 67).

80. Some scholars (e.g. Bancroft 1883; Mecham 1927: 228; Sauer 1932) also have accused Fray Marcos of exaggerating or lying about how far he travelled and what he saw. These charges have been refuted by Undreiner (1947).

81. Most alternative reconstructions assume that Fray Marcos retraced Cabeza de Vaca's journey through the foothills of Sinaloa and Sonora. Las Casas (O'Gorman 1967: II, 182-183, 375), who reportedly knew Fray Marcos, appears to have been the first to propose such a routing for Fray Marcos. The friar, however, made no mention in his report of following Cabeza de Vaca's route. Fray Marcos also made no mention of Corazones or other native settlements that gave Cabeza de Vaca and Fray Marcos' companion, Esteban, a warm welcome three years previous. This failure to mention settlements or native peoples visited by the survivors of the Narvaez expedition is particularly surprising, given that Cabeza de Vaca and his companions reportedly taught their Opata and Pima hosts about Christianity, albeit through signs (Cabeza de Vaca 1944: 62-63; Hedrick and Riley 1974: 62). Fray Marcos, being a priest, surely would have commented on meeting Indians who knew something of Christianity. On the contrary, he reported that 80 leagues beyond Petatlan he met Indians who " marvelled at seeing me, because they knew nothing of Christians" (Hammond and Rey 1940: 46). At the time, the only area 80 leagues north of the Rio Culiacan that had not been penetrated by Spaniards was the coastal plain to the north of the Rio Yaqui. It will be recalled that Cabeza de Vaca (1944: 63) and his companions (Hedrick and Riley 1976: 63) learned while at Corazones that the coast was well populated, and that the natives lived in large houses that were well supplied with food, cotton, and turquoise. It is not unlikely that Mendoza had Fray Marcos follow the coast to verify these reports and to determine the feasibility of using ships to supply Coronado's expedition, which followed Fray Marcos' reconnaissance. Indeed, Viceroy Mendoza wrote to Fray Marcos instructing him to always try to gather information about the seacoast, and to leave letters buried near large trees emblazoned with the sign of the cross at the mouths of rivers and suitable harbors, in case the Viceroy should send ships up the coast (Hammond and Rey 1940: 60). Coronado also noted in one of his letters to the King that Fray Marcos was sent to explore the coast of New Spain (Hammond and Rey 1940: 46). Also, the friar, himself, acknowledged that "my instructions were not to go away from it [the coast]" (Undreiner (1947: 433, f. 60). Castaneda also seems to have implied that Fray Marcos followed the coast when he noted that Coronado initially thought that his army would have to travel along the sea coast to reach Cibola (Hammond and Rey 1940: 202).

82. Although most scholars have equated Fray Marcos' Petatlan with the modern settlement of Sinaloa on the river of the same name, Undreiner (1947: 427) as well as Bancroft (1883: 28, f. 4) believe the settlement of Petatlan mentioned by Fray Marcos was on or near the Rio Fuerte. Unfortunately, Fray Marcos says precious little about the town or its location. Undreiner's (1947: 428) suggestion that Petatlan was near present day Agiobampo is accepted here because it accords well with Undreiner's arguments regarding Fray Marcos' rate of travel and the location and identity of subsequent points of reference mentioned by Fray Marcos.

83. Undreiner (1947: 430) argues that "the island visited by the Marques del Valle" was the island of Altamura, south of the Rio Mocorito. It is difficult to understand how this identification can be correct, since, according to Undreiner, Fray Marcos was north of the Rio Fuerte when he saw the Indians going to and from the island on rafts (Hammond and Rey 1940: 64).

84. In the late 1700's Father Joseph Och (Treutlein 1965: 122-123) also commented that the Opata made pottery with thousands of gold scales. Although Och was convinced that these "scales" were in fact gold, archaeological research in the Sonora and other inland valleys indicates that the Opata added mica or used mica-bearing clays for their pottery. Excavations in the Sonora Valley also have uncovered mica pendants like those referred to by Fray Marcos.

85. Although several scholars have argued that Vacapa was on the Rio Fuerte or the Rio Mayo - some 500 miles from Cibola - both rivers are much too far south to accord well with the friar's rate of march or the visit of the "Pintados" (Sobaipuri) to Vacapa (see Undreiner 1940: 436).

86. Undreiner (1947: 455) has inferred that Fray Marcos travelled for 5 days down the Salt River, past present day Mesa or Tempe, and then observed from a peak on the Salt River mountains the southeast to northwest trend of the mountains by the coast. However, Fray Marcos noted only that, after he had confirmed that the coast changed direction, he "returned to proceed on my way and marched through that Valley for five days" (Hammond and Rey 1940: 71). This statement does not necessarily imply a 5 day journey down river. Indeed, the friar's statement about going to verify a change in the direction of the coastline is more suggestive of a brief, perhaps one or two day, journey down river. If such were the case, then Fray Marcos at the end of his 5 day journey would have been a considerable distance upstream from the the Tonto National Monument, whence he made his detour downstream.

87. Hammond and Rey (1940: 72) quote Fray Marcos as stating that Tototenac "was toward the southeast". According to Undreiner (1947: 462, f. 131), Hammond and Rey as well as other researchers have erred in their translation of this phrase, which should read "toward the west".

88. The two **despoblados** crossed by Fray Marcos, between the Gila and Salt Rivers and from the headwaters of the Salt River to the lower Rio Colorado, remain to this day sparsely populated.

89. Interestingly, at one of the 3 villages (San Xavier del Bac), Manje noted that the inhabitants lived in 3 **barrios**. Each **barrio** may have contained Sobaipuri from 3 different villages that settled at San Xavier after their own settlements were abandoned following an epidemic. As we will see, village amalgamation following epidemics was common during the early historic period in northern New Spain.

90. In @1700, the Gila River Pima numbered between 2,000-3,000 (Doelle 1981: 61; Ezell 1961: 17).

91. It should be noted that there is no reason to believe that the Pima lied to De Niza about Tototenac. As Fray Marcos himself noted, the Pima were very truthful and reliable (Hammond and Rey 1940: 74).

92. The abandonment of painted wares, including Gila Polychrome, in favor of Whetstone Plainware and other simpler ceramics (DiPeso 1953: 262), probably was accelerated after Fray Marcos' **entrada** and as a result of the introduction of Old World diseases. The dislocations associated with the introduction of smallpox and other maladies also may explain the paucity of worked shell, stone, and other "luxury" goods reported from Sobaipuri sites (Masse 1981: 37).

93. As noted in footnote 73, Las Casas' observations regarding "Senora" may actually pertain to the Pimeria Alta. If so, then the persistence of chiefdoms with "great houses" and sepulchers containing elites (Martin and Plog 1973: 316-317) is supported by Las Casas' comments regarding "very tall stone and mud temples for idols and for the entombment of principal personages" (O'Gorman 1967: I, 281).

94. As noted in the previous chapter, archaeologists believe warfare, social unrest, and site abandonment and amalgamation were due at least in part to deleterious climatic shifts. Curiously, Fray Marcos said very little about conflict or warfare. Writing in the late 1700's, the Jesuit missionary and historian, Pfefferkorn (Treutlein 1949: 207), noted that the Pima, Opata, and Seri frequently fought for the slightest reasons, and that sometimes one side was almost completely wiped out or was forced to flee to a distant region.

95. The Pima and Opata may have competed with each other for the right to trade with Zuni. Both groups produced cotton and had access to coral which could have been exchanged for bison robes and turquoise.

96. Fray Marcos reportedly was in the custom of walking barefoot, and purportedly walked from Guatemala to Mexico City in 1537 (Bolton 1949: 17-18).

97. Coronado's expedition was actually one part, albeit the most important one, of a three pronged attempt at exploration and conquest directed by the Viceroy. Shortly after Fray Marcos' return, and before Coronado's departure, Mendoza sent Melchior Diaz and 15 horsemen north to gain additional information about Fray Marcos' discoveries (Hammond and Rey 1940: 204-205). While Diaz reconnoitered, Coronado assembled one of the largest and best equipped armies that had ever been raised in the New World (Hammond and Rey 1940: 87-108). Mendoza's plan called for the army to be

supplied by two ships that were supposed to rendezvous with Coronado at a suitable location along the coast. The two vessels, commanded by Hernando de Alcaron, set sail on May 9, 1540 — two weeks after Coronado and the vanguard of his army left the Villa of San Miguel for Cibola (Hammond and Rey 1940: 117-161).

98. The uprising began in the mountains near Mixton, Nochistlan, Acatic, and Cuinao, among the Zacatecos, Caxcanes, Guachichiles, Nayaritos, and other "Chichimecs". By the summer of 1541 the uprising spread to Culiacan, Compostela, Purificacion, and Guadalajara. After the rebels defeated a large Spanish and Indian force led by Pedro de Alvarado and laid siege to Guadalajara, in September, 1541, Viceroy Mendoza raised an army of 450 Spaniards and some 30,000 Tlascaltec and Aztec warriors that raised the siege at Guadalajara. Over the next six months the Spaniards and their Indian allies killed or enslaved thousands of rebels, effectively restoring peace to much of Nueva Galicia (Bancroft 1883: 490-514).

99. At the time of his appointment, Ibarra was only 16 years of age. Apparently his appointment as captain was based more on who he was, rather than his qualifications as a military leader. Young Francisco was the nephew of the Viceroy's son and law and one of the founders of Zacatecas, Diego de Ibarra (Mecham 1927: 58-59).

100. The province of Nueva Vizcaya encompassed much of present day Durango, Chihuahua, Sinaloa, and Sonora. Ibarra's reconquest of Chametla, his pacification of the Culiacan region, and the founding of San Juan Bautista on the Rio Fuerte, in 1564, led to Sinaloa's removal from Nueva Galicia and its incorporation into Nueva Vizcaya, where, for a while, it came under the jurisdiction of the **Audiencia** of Mexico (Mecham 1927: 187-203).

101. Obregon's chronicle was completed in 1584 and was written ostensibly to secure a commission from the King to lead an expedition to New Mexico; the commission was eventually awarded to Don Juan de Onate (Mecham 1927: 11-112). Obregon's chronicle is actually a general history of exploration in northwestern New Spain, from the time of Cortes up to Espejo's expedition to New Mexico (1583). Included in this history is an account of Ibarra's expedition, which Obregon participated in. Although another of Ibarra's soldiers wrote an account of Ibarra's expedition (AGN n.d. ; op cit., Sauer 1932: 54-58), Obregon's chronicle contains the greatest amount of ethnographic data. Unfortunately, as Sauer (1932: 38-39) has noted, since Obregon wrote his chronicle some 20 years after the events narrated occurred, his chronicle is often difficult to interpret. This is particularly true with respect to Ibarra's itinerary. However, despite all its shortcomings, Obregon's account still provides a reasonably good picture of native life in many areas of northwest Mexico. Significantly, recent archaeological data from Sonora (Reff 1981) indicates the picture painted by Obregon often is quite accurate.

102. As Mecham (1927: 126-127) has noted, the route followed by Ibarra is uncertain. It should be noted, however, that Mecham has suggested that Ibarra travelled as far north as Santa Barbara, and then retraced his steps before turning to the southwest, in the direction of Topia. This proposed routing of Ibarra does not seem to agree with Obregon's chronicle, which

makes no mention of a long detour in the direction of Santa Barbara (Hammond and Rey 1928: 58-59). It seems more reasonable to infer that Ibarra left the Valley of San Juan and travelled up the Rio Nazas, subsequently following the "Topia Road" or the mountains flanking the "Road".

103. It is difficult to determine Lopez's precise travel route, although it is apparent that he travelled through Acaxee and Xixime territory (Beals 1933: 19).

104. It should be noted that Contreras implied that village life was a consequence of Tarahumara interest in attracting priests and commerce with Spaniards from Parral (AGN 1638: 286-287; op. cit., Sheridan and Naylor 1979: 11). However, Ibarra in 1562 reported the discovery of a very fertile valley to the north of the Rio Nazas that seems to confirm that, aboriginally, the Tarahumara and Tepehuan were living in settled villages along the headwaters of the Conchos. In an apparent reference to the Rio Balleza, Ibarra noted that he had discovered a valley one hundred leagues from the mines of Avino, "...inhabited by a great number of people, with much food, and as skillful in the cultivation of their fields and in the irrigation of them as one can find in the world..." (Mecham 1927: 81). The Valley referred to here by Ibarra was named San Francisco (see Hammond and Rey 1928: 50, f. 124), apparently upstream from the sight of the later Franciscan mission of San Francisco de Conchos.

105. Beals (1933: 33-34) has mistakenly attributed Del Valle's letter to Father Luis de Ahumada, who also has a letter that appears in volume 4 of **Documentos para la Historia de Mexico**.

106. Santaren wrote several lengthy commentaries on the Acaxee that first appeared in the **anuas** of 1601, 1602, and 1604 (see Alegre 1958: 74-94; Perez de Ribas 1944: III, 13-22).

107. Father Santaren believed that Acaxee warfare was due to a lack of political leaders who could compose differences between feuding kin groups (Alegre 1958: 79). As Beals (1933: 21) has noted, Santaren was contradicted by other Jesuits who noted the existence of caciques and other leaders among the Acaxee.

108. Perhaps as Harris (1979: 90-91) has suggested, raiding for women and terroristic cannibalism were elements of a complex system that regulated population growth by promoting female infanticide and dispersion of settlements in the Sierras. Infanticide was in fact quite common among the Tepehuan and their neighbors (Beals 1933: 20; DHM 1598: 51; Perez de Ribas 1944: III, 149-152).

CHAPTER IV

OLD WORLD DISEASES AND THE ROUTES OF CONTAGION

Although it would be convenient at this point to turn to the evidence of disease and its consequences, we must first familiarize ourselves with the maladies and routes of contagion that were responsible for epidemics during the early historic period. Methodologically speaking, a knowledge of how smallpox and other diseases behave is an important prerequisite for interpreting historical reports and references to disease. Most early accounts of epidemics were in fact written by individuals who had little or no understanding of disease pathogenesis and epidemiology. Indeed, prior to this century, disease frequently was viewed as a form of divine punishment¹ or was attributed to bad air (*mal aria*) or celestial events such as comets or planetary movements (Beveridge 1978: 24; Cooper 1965: 195; Crosby 1972: 43; Florencia 1955: 257-258; McNeill 1976: 184; Russell et al. 1963: 2). Not only were the causes of disease misunderstood, but maladies like smallpox, measles, typhus, and chicken-pox often were confused. Still other diseases such as typhoid and typhus and malaria and dysentery were considered the same malady (Ashburn 1947: 92; Cooper 1965: 193; Dixon 1962: 68; Peter 1975). This confusion or failure to differentiate among diseases reflects the fact that, superficially, many diseases behave in a similar fashion. Epidemics of a single malady also were infrequent during the early historic period;

circumstances that favored the spread of one disease favored the spread of others and, thus, it was quite common for several diseases to afflict populations simultaneously (Crosby 1972: 43; Busvine 1976: 53).

While most early accounts of epidemics reflect an ignorance of disease pathogenesis and epidemiology, they nevertheless are often quite detailed with respect to clinical symptoms. By focusing on observations regarding fever, stomach and back pains, hemorrhaging, rashes, bloody stools, etc., and then comparing these observations with modern medical knowledge, it frequently is possible to identify or confirm reports of smallpox, malaria, or other diseases. With a knowledge of disease pathogenesis and epidemiology it also is possible to determine how epidemics may have originated and spread. Although by the late 1700's experience had shown that many epidemics in northern New Spain began in Mesoamerica (e.g. Treutlein 1949: 217-218), few Spaniards or other Europeans understood and, thus, commented on the spread of disease². Many epidemics actually are represented in the historical record as isolated references to individuals or communities suffering from disease. It remains for the researcher to tie these reports together in time and space. To accomplish this task it is necessary to know how particular diseases are transmitted, what the incubation period is for different maladies, and how long an infected host can shed a given virus, parasite, or other disease agent. These medical facts must then be coupled with data on Spanish and Indian exchange systems. Only then is it possible to determine the probable origins and spread of disease in northern New Spain.

There are, in fact, many ways in which a knowledge of disease pathogenesis and epidemiology are useful in interpreting the historical

record. Toward this end, the discussion that follows reviews first the pathogenesis and ecology of various diseases that had a profound impact on New World populations. Subsequently, data on Spanish and Indian trade networks are examined in light of the medical facts to isolate the routes of contagion and the probable circumstances surrounding the introduction and spread of disease during the early colonial period.

The Pathogenesis and Ecology of Old World Diseases

Both acute and chronic infectious diseases were unleashed on the North American continent that wrecked havoc among Amerindian populations. The devastation wrought by smallpox, malaria, and other maladies was due in large part to the Amerindian's lack of genetic traits that promoted resistance to introduced disease. Such traits were present in most European populations, and were a consequence of repeated exposure to disease during the millennia preceding the Conquest (Dunn 1965; McNeill 1976; Motulsky 1960, 1971). It was not simply a matter of genetics, however, that explains why so many Indians succumbed to the unseen enemy that accompanied the Christian invaders. The unprecedented and inexplicable suffering caused by smallpox and other maladies left many communities overcome with shock, panic, and fear. These emotional states helped to undermine familial and social institutions, resulting in suicide, starvation, dehydration, or various secondary infections that proved lethal in the absence of basic care. The psychological trauma coincident with outbreaks of smallpox, measles, and other maladies may very well have equalled or surpassed constitutional susceptibility as the leading cause of Indian mortality (e.g. Aschmann 1959: 146; Cook 1955: 321-322; Neel et al. 1970). It is difficult to generalize, however, about what contributed most to the

phenomenal loss of Indian life. Clearly there were a variety of factors that determined case frequency and mortality during epidemics, including the particular disease(s) that were involved.

Smallpox

Of the many diseases that were brought to the New World, perhaps none had a more profound impact on Amerindian populations than smallpox. At the time of Columbus' maiden voyage of discovery, smallpox had killed countless millions in the Old World, and had become a relatively harmless disease of childhood in Europe (Ashburn 1947: 86; Shurkin 1979). It was with great surprise, therefore, that many Spaniards noted that smallpox killed large numbers of Indians, young and old alike (e.g. Ashburn 1947: 86). Europeans, in general, commented that smallpox was unsurpassed when it came to claiming Indian lives (Crosby 1972; Dobyns 1976; Stearn and Stearn 1945:13). Even in the late 1800's — several centuries after smallpox was brought to the Americas — the disease swept through Indian communities in the United States, killing between 55%-90% of those who contracted the disease (Stearn and Stearn 1945:15).

Like many acute infectious diseases, smallpox is caused by a virus (**variola**)³, and tends to occur most often during the cooler months of the year, particularly during the winter and early spring. Smallpox can be contracted, however, at any time, and requires only brief exposure to any of a number of sources of **variola**⁴. The chief source of smallpox is respiratory discharges from individuals who are in the ca. 2 week post-incubation period of infectivity. Pregnant women who contract smallpox also can pass the disease on to their infants **in utero** (Downie and McCarthy 1954:196). The corpses, food, bedding, clothing, or other possessions of smallpox victims also

can harbor smallpox. Experiments have shown that scabs from a single smallpox case, when stored in raw cotton at room temperature for 530 days, still retain viable virus (Dixon 1962: 304). Experiments of this kind affirm numerous historical and modern reports of raw and finished cotton (clothing, blankets) giving rise to smallpox epidemics⁵(Cook 1939; Deutschmann 1961: 7; Dixon 1962: 303-307; Stearn and Stearn 1945: 44).

After smallpox enters the body via the mucous membrane of the upper respiratory tract, the virus undergoes an incubation period of 12-13 days. During this time the smallpox virus multiplies and spreads to the lymph nodes and other tissues and internal organs. The victim in the meantime rarely exhibits any symptoms or experiences any discomfort (Dixon 1962: 172-174)). Around the thirteenth day this situation changes dramatically; at various multiplication sites infected cells burst, releasing a "storm" of **variola** that quickly spreads throughout the body (Dixon 1962: 176). With the onset of "sudden viraemia", the patient becomes prostrated from recurring bouts of fever, chills, and headache. Within several days the patient also develops the characteristic smallpox rash, signaling **variola's** successful invasion of the dermis and epidermis.

The above symptoms characterize the early eruptive phase of smallpox. Often in the past these symptoms were misdiagnosed as influenza, measles, or other virus diseases (Dixon 1962: 68). Such mis-diagnoses were more likely to occur during epidemics of "fulminating smallpox". Epidemics that fall into this clinical category are characterized by death within 4 or 5 days of acute **viraemia**, and often within 48 hours, before a rash or other diagnostic symptoms appear (Deutschmann 1961; Dixon 1962). Epidemics of fulminating smallpox were quite common during the early historic period in

the New World, and may frequently have been what the Mexica and other native peoples in Mexico called "**Cocoliztli**"⁶.

While it is not uncommon for smallpox victims to die from the disease within four or five days of acute viraemia, many patients live for another week to ten days. During this time, the smallpox rash or macules that formed during the early eruptive phase progress through stages of papule and vesicle, the latter resembling a pimple containing serous fluid. While **variola** is thus attacking the skin, it also destroys other tissues, interfering with bodily functions. Characteristically, this onslaught continues for 10-14 days after acute viraemia, at which point many die from general toxemia. Those who succumb during this period are said to die from "malignant smallpox", in recognition of the fact that death resulted strictly from the effects of the **variola** virus. Generally those who continue to suffer and who die after the eighteenth day, succumb from complications or an inter-current infection such as pneumonia. Those who are lucky enough to weather a bout with smallpox generally find that, at the end of three weeks, their rashes have progressed from macules through pustules, and after drying-out, the resulting scabs have fallen off, leaving the patient unblemished. Not all, however, are so fortunate, as smallpox has been known to leave many seriously scarred, both physically and mentally. Fortunately, those who recover from smallpox are left with an active immunity that frees them from future attacks of the disease (Deutschmann 1961; Dixon 1962).

Although smallpox was greatly feared in the past for its propensity to kill, it is difficult to generalize about case mortality rates. Like all infectious diseases, the mortality rate for smallpox depends on a number of factors, including a population's prior disease history, its nutrition and

general health (physical and psychological), and the strength of the particular smallpox virus that attacks a population. In 1707, smallpox reportedly appeared for the first time in Iceland, and subsequently killed no less than 18,000 of the island's total population of close to 50,000 (Stearn and Stearn 1945: 14). Studies of other unvaccinated populations exposed to *variola major* indicate a similar average case mortality rate of 30% (Deutschmann 1961: 7; Dixon 1962: 325)⁷. Although precise data is lacking, the case mortality rate from smallpox among Amerindian populations reportedly ranged from 30% to over 50% during the early historic period (Dixon 1962: 325; Dobyns 1976). As noted, such high death rates resulted from a lack of genetic and acquired resistance to smallpox as well as from the near total collapse of familial and social institutions. It is also true that many smallpox epidemics involved other diseases that contributed to high case mortality rates.

Measles

If smallpox ranks first among killers of the Amerindian, measles must certainly be viewed as a top contender for the number two position. Prior to the Conquest, measles claimed perhaps as many lives in Europe as did smallpox. It is difficult, however, to compare mortality rates for the two diseases, since both were considered the same malady as late as the tenth century (May 1958: 264). Even after they were differentiated, smallpox and measles continued to be confused until the twentieth century (Dixon 1962: 68; May 1958: 264). Judging from what seems to be an unusually high frequency of reports of smallpox during the early historic period, there may have been numerous occasions when the more communicable and equally lethal disease of measles was mis-diagnosed⁸. Beginning, however, with the first New World measles pandemic in 1531 (Mendieta 1945: 174; Ocaranza 1934: 84),

there were numerous occasions when measles was recognized and its devastating impact on the Amerindian acknowledged.

Like smallpox, measles is caused by a virus (**rubeola**), and often reaches epidemic proportions during the cooler months of the year. Measles can be contracted, however, at any time, and is one of the most communicable diseases known to science (Berkow et al. 1982: 180; May 1958: 267-268). Susceptibility to measles increases as a result of poor general health, although sooner or later everyone contracts the disease, regardless of health or genotype (May 1958: 264-266). It is thought that measles is most often spread by respiratory discharges. Apparently even a transient outdoor contact with droplets of mucous or saliva containing **rubeola** are sufficient to contract measles (May 1958: 268). The disease also can be acquired from clothing or other materials that have been infected with **rubeola**, although data is scant on how long the virus can survive outside the human host (Berkow et al. 1982: 180; May 1958: 266). There also is some uncertainty regarding whether the measles rash may be a source of infection (May 1958: 265).

After **rubeola** has invaded the body via the respiratory tract, the virus undergoes an incubation period of 7-14 days. At the end of this time, the virus makes its presence known through fever, headache, and influenza-like symptoms such as sinus and upper-respiratory inflammation and congestion. Approximately 3 days after the onset of catarrhal symptoms, the patient develops a rash on the neck and face that spreads within a day or two to the trunk and extremities. At the same time the patient's throat and mouth become inflamed. These symptoms persist for several days or a week, until such time as the patient dies or recovers. Those who recover are generally

left without serious sequela and acquire an immunity to measles that lasts a lifetime. Not all who recover from measles, however, go unscathed, as some may suffer a partial loss of hearing, encephalitis, or damage to the respiratory system (Berkow et al. 1982: 181; May 1958).

Although mortality from measles is quite low today, measles historically has had serious demographic consequences, particularly for populations with little or no history of exposure to **rubeola**. During the nineteenth century, measles was introduced to the Fiji and Sandwich Islands. In less than a year, the disease killed some 40,000 people on each of the two Islands — better than 25% of the Islands' population (Ashburn 1947: 90). With respect to Amerindian populations, mortality from measles often was reported to be as great as smallpox (e.g. Ashburn 1947: 90-91). Case mortality from measles among Indian communities ranged, therefore, from 30% to better than 50%. Mortality rates this high probably were due to the direct effects of **rubeola** virus as well as inter-current infections of pneumonia or streptococci (Berkow et al. 1982: 181). The latter flourish in communities stricken with fear, malnutrition, and general malaise⁹, as evidenced by recent measles epidemics among the Yanamamo and other Indian populations exposed to measles for the "first time" (Neel et al. 1970).

Influenza

During the early historic period there were a number of disease episodes in the New World that were characterized, in part, by fever, a sore and swollen throat, coughing, prostration, and occasionally, nose bleeding. Epidemics with these same symptoms were frequent in the Old World prior to the Conquest, and in 1504 were duly recognized as a distinct malady,

governed by the "influenza" of the stars (Beveridge 1978: 24). Influenza subsequently may have been brought to the New World during the Conquest of Mexico or during several pandemics that began in 1558-59 and 1580 (Beveridge 1978; Dobyns 1963; McBryde 1940). Unfortunately, influenza can easily be confused with other acute infectious diseases. It is therefore difficult to determine when it first arrived in New World and how often it reached epidemic proportions. There are enough reports of epidemics whose symptoms are highly suggestive of influenza to indicate, however, that the disease was responsible for significant reductions in aboriginal population.

One reason for believing that influenza was more important than the historical record at first glance suggests, is that the influenza virus can circumvent any immunity acquired by previous exposure to the disease¹⁰. Influenza is unique among viruses in its ability to quickly adapt to changes in its host environment (Kilbourne 1975: 492). Precisely how new sub-types of influenza come into being is not, however, well understood. Some researchers believe that influenza virus are retained in individuals who recover from the disease, and who unwittingly serve as hosts for new strains of the virus that emerge with genetic mutations (Berkow et al. 1982: 192; Salk 1954: 228). In time, some of these new strains are thought to multiply, and given appropriate climatic or host conditions, result in serious epidemics or pandemics¹¹. Alternatively, other researchers believe new strains of influenza occur as a result of hybridization of animal and human strains of virus, or as a result of the adaptation of animal strains to man (Beveridge 1978: 50). Whatever the origins may be, when new strains of influenza appear, all individuals are susceptible to the disease — young or old, strong or weak (Beveridge 1978: 26).

Like other infectious diseases, influenza occurs most frequently during the cooler or coldest months of the year (Beveridge 1978: 44), and is spread primarily via respiratory discharges. Individuals may spread the disease for upwards of 8 or 9 days after contracting influenza. Apparently when the influenza virus is protected from sunlight it can live for many hours in the form of droplet nuclei -- minute particles of dehydrated mucous or saliva suspended in air (Beveridge 1978: 47-48). It would seem, therefore, that the virus can be transmitted in clothing or other materials shielded from sunlight, although this possibility has not been established.

After the influenza virus has invaded the upper respiratory tract, it undergoes an incubation period of 2-3 days. During this time the virus multiplies in the surface membranes. At the end of the incubation period, the patient suffers from headache, fever, an inflamed trachea, and pains in the legs and back (Berkow et al. 1982: 192-193; Beveridge 1978: 18; Kilbourne 1975a). These symptoms generally disappear after 3 or 4 days, leaving the patient weak and often suffering from mild depression (Beveridge 1978: 18). Those who are less fortunate succumb to secondary bacterial infections of the lungs, particularly pneumonia (Kilbourne 1975: 505; Peter 1975: 115).

Since sub-types of influenza are so variable, it is difficult to generalize about case frequency and mortality rates. Attack rates in modern times have been very high, while case mortality has been generally low (Beveridge 1978: 18). Probably during the early historic period both case frequency and mortality were high, given the Amerindians lack of genetic resistance to influenza. Today, most deaths following a bout with influenza result from secondary infections, particularly pneumonia (Kilbourne 1975: 505).

Historically, the case mortality rate from pneumonia has ranged as high as 35-40% (Peter 1975: 115). Similar mortality rates from pneumonia or other bacterial infections (e.g. streptococci) no doubt obtained during the early historic period, as is indicated by reports of **dolor de costado** (e.g. Gibson 1964: 450-451) — severe lower back pains that are characteristic of pneumonia.

Typhus

While many of us know something about smallpox and have experienced mild forms of influenza and measles, a disease like typhus is largely enigmatic. The enigma arises from the fact that typhus is a disease transmitted by head and body lice, and generally occurs when the human condition is at its lowest, during times of war, famine, or disasters that lead to over-crowding and poor general health. Long before the discovery of America, typhus raged in Europe, frequently deciding the outcome of wars and altering the course of history (Cloudsley-Thompson 1976; Zinsser 1934). Despite its importance, typhus was not consistently distinguished from other diseases until the fifteenth century¹², when it became truly widespread in Europe (Cloudsley-Thompson 1976: 106). One of the first recognizable outbreaks of typhus occurred during the battle of Granada in 1489. The disease reportedly was brought from Cyprus, and in less than a year, killed 17,000 Spanish soldiers — more than five times the number of Spaniards as died at the hands of the Saracens (Ashburn 1947: 93; Cloudsley-Thompson 1976: 107). Shortly thereafter, typhus came to be known as spotted fever (**tabardete**, **tabardillo**), and spread throughout the Iberian peninsula. The disease may have been brought to New Spain in 1545. That year, and for several years thereafter, hundreds of thousands of natives died from a great

matlazahuatl that appears to have been, at least in part, typhus (Dobyns 1963: 499-500; Ocaranza 1934: 84-85; Zinsser 1934: 256). Again in 1575-81, millions of natives in New Spain died from what was more assuredly the first of many outbreaks of typhus (Ashburn 1947: 92; Florencia 1955: 257-262; Zinsser 1934).

Although for centuries typhus was thought to be a single malady, it is now regarded as a group of related diseases caused by different species of **Rickettsia**, each of which is transmitted to man by different arthropod vectors (e.g. lice, fleas, ticks). In both the Old World and the New, epidemic or louse-borne typhus has had the greatest impact on human populations¹³. The disease is caused by **Rickettsia prowazeki** and is transmitted by body and head lice. Predictably, typhus epidemics occur only among populations infected with lice (Busvine 1976: 52). The louse acquires **Rickettsia** by ingesting blood from an individual harboring the microorganism. The ingested **Rickettsia** subsequently multiply in the louse's stomach and after approximately 10 days they proliferate to the point where the louse's stomach bursts. Usually before this happens the louse crawls from its infected host to another individual who may be free from infection¹⁴. In the process of finding a new home the louse may disseminate **Rickettsia** in its feces. The feces may then be inhaled or, alternatively, the new host may become infected by crushing the louse and forcing the louse's feces or the contents of its stomach into the epidermis¹⁵ (Busvine 1976; Cloudsley-Thompson 1976: 102-103; Zinsser 1934).

Once **Rickettsia** have invaded the body, the organisms make their way to the blood stream where they undergo an incubation period that may range from 5-15 days, but which generally extends from 8-12 days¹⁶. At the end

of the incubation period, the typhus victim experiences a high fever, chills, unusual headache, numbness, general prostration, and occasionally severe nosebleed¹⁷. Several days after these symptoms appear, the typhus victim develops reddish spots or **petechiae** that look very much like flea bites. The typhus rash appears at first on the shoulders and trunk and subsequently spreads to the extremities. Generally, if the patient survives the trauma and toxemia of typhus, the spots will go through a progression from pink through brown before fading. After 2 weeks the spots disappear altogether, signaling that typhus has run its course. Significantly, those who survive an initial bout with typhus frequently retain **Rickettsia** for many years as a sub-clinical infection (Busvine 1976: 53). These "healthy carriers" become a source of infection for others during times of stress or poor general health, when the bodies production of antibodies decreases, permitting a resurgence of **Rickettsia** (Berkow et al. 1982: 160; Busvine 1976: 53).

Precise figures on case frequency and mortality are lacking for typhus just as they are for many other Old World diseases. There can be little doubt, however, that typhus was a major contributor to dramatic reductions in Amerindian populations during the sixteenth and later centuries (e.g. Ashburn 1947). As noted, at the time of the Conquest, typhus had become widespread in Europe and had figured in the demise of many armies. The disease's potential for destruction is reflected in the number of French soldiers who died from typhus during the siege of Naples in 1529. After surrounding the Imperial army of Charles V, the French forces, numbering around 58,000, lost 21,000 men to typhus in three weeks (Cloudsley-Thompson 1976: 107). Since New World populations lacked any immunity to typhus — something their European counterparts had at least some measure of — the

case mortality rate for typhus among native Americans probably ranged from 30% to better than 50%. This range certainly agrees with descriptions of what were probably the first two epidemics of typhus in New Spain, in 1545 and 1575 (Floresca 1955: 257-262; Ocaranza 1934).

Malaria

All of the diseases that have been considered so far generally run their course in two or three weeks — decimating non-immune populations, but leaving few obstacles to numerical recovery. Along with these acute infectious diseases, Europeans introduced a variety of chronic infectious diseases such as malaria — perhaps the most insidious of all maladies. Although some have thought that malaria was present in the New World during pre-Columbian times, historical evidence as well as studies of genetic polymorphism point to an Old World origin for malaria (Crosby 1972; Dunn 1965; McNeill 1976)¹⁸. Historical documents, including ancient medical texts, indicate that malaria was present in the Old World for at least a millennia prior to the Conquest. Indeed, the disease apparently became endemic along the shores of the Mediterranean and was responsible, in part, for the decline of the Greek and Roman empires (Cloudsley-Thompson 1976: 84-91). Over a thousand years later, along the shores of the Gulf Coast and in Yucatan, malaria launched a new career, killing untold thousands (e.g. Aguirre Beltran 1940: 191-192; Thompson 1970: 58).

Malaria is caused by four related yet different species of *Plasmodium* parasite that are transmitted to man by anopheline mosquitoes (Boyd 1949, 1949a; Cloudsley-Thompson 1976). The four malaria parasites each produce a clinically and epidemiologically distinct disease: *P. malariae* (quartan malaria), *P. vivax* (tertian malaria), *P. Ovale* (ovale malaria), *P. Falciparum*

(sub-tertian or malignant malaria). Since all types of malaria depend on anopheline mosquitoes, the disease occurs most frequently during the warmest months of the year and after the rainy season, when the mosquito increases its range and absolute numbers (Boyd 1949a: 631; Christophers 1949:709). Historically, malaria has been endemic in tropical or sub-tropical areas, where warm temperatures and high humidity favor mosquito reproductive success (e.g. Faust 1949).

In areas where **Plasmodium** is present, together with a sufficiently large population of anophelines, all that is required for an epidemic of malaria is an influx of non-immune individuals. Alternatively, an epidemic will result when **Plasmodium** are introduced into an area that has both anopheline mosquitoes and individuals who have not been previously exposed to the particular **Plasmodium**. Epidemics that began in this fashion, involving Europeans who introduced **Plasmodium**, were quite common during the early historic period (e.g. Cook 1955). Today, as in the past, individuals who contract quartan malaria can harbor **Plasmodium malariae** for 20 years. During this time the victim will experience occasional resurgences of **parasitemia** that may be transmitted to others via anopheline mosquitoes (Kitchen 1949: 1017). If no drugs are taken, which was the case until the nineteenth century, the other three types of **Plasmodium** (*vivax*, *ovale*, *falciparum*) will remain with an individual for at least a year after a primary attack (Harrison 1978: 117). During this time, those with quartan or tertian malaria may experience resurgences of **parasitemia**, and never know it (Boyd 1949: 554).

A simple, momentary insertion of the proboscis of an anopheline mosquito is all that is required to contract malaria (Boyd 1949a: 638). During

epidemics it is not uncommon for individuals to be stung by mosquitoes carrying different types of **Plasmodium**. When this happens, the victim experiences a multiple, continuous infection that can endure with clinical symptoms for years (Boyd 1949: 578-579). Once an individual has been stung, the malaria parasite invades the red blood cells. Here it feeds on the contents of the erythrocytes and completes an initial reproductive cycle. This initial cycle or incubation period varies from around 10 days for *P. vivax* (tertian malaria) to 20 days for *P. malariae* (quartan malaria). At the end of the incubation period, the **Plasmodium** (now increased in number) abandon the blood corpuscles, releasing a wave of toxins into the blood that result in fever, sweating, and prostration. These symptoms generally continue for several days, until the body is able to remove the toxins. While this is occurring the **Plasmodium** re-invade the red blood cells, and after an incubation period that varies depending on the particular type of **Plasmodium**, a new wave of toxins and parasites are released into the blood. In the case of sub-tertian malaria, these post-incubation cycles are repeated every 36-48 hours, while tertian and quartan malaria require 48 and 72 hours, respectively. With each release of parasites, an individual is subjected to potentially lethal levels of toxemia. Assuming the patient survives, and no drugs are taken, recurring bouts of fever will continue for 6 months to a year, and often at random for up to 20 years, in the case of quartan malaria (Boyd 1949; Cloudsley-Thompson 1976; Harrison 1978).

As one might suspect, malaria can have dire consequences, if not immediately, then months or years after initial infection. The most lethal of the four types of malaria, malignant tertian, reportedly has a case mortality rate of 30%-50% (Cloudsley-Thompson 1976: 79). Before the use of drugs such

as quinine or chloroquine, the mortality rate for Europeans during their first year of residence in West Africa was 30-70% (e.g. Cloudsley-thompson 1976: 98-99). This range in mortality agrees favorably with Cook's (1955) study of Indian mortality during the malaria epidemic of 1830-33 in California and Oregon. Cook reported a mortality rate of 40%-100%, noting that because of the complete breakdown of village life, many died who might otherwise have survived (Cook 1955: 321).

In California and Oregon as well as in other areas of the New World, malaria did more than decimate populations — the disease often made it impossible for populations to recover, both numerically and culturally. This is particularly true of tropical or semi-tropical areas, where anopheline mosquitoes flourish, and where many who survive an initial attack of malaria become reservoirs of *Plasmodium*. Today, as in the past, this reservoir may be pregnant women who unwittingly transfer *plasmodium* to their infants *in utero*, causing spontaneous abortion, intrauterine death, and premature birth. Alternatively, healthy newborns, which enjoy a passive immunity to malaria for 6 months, frequently acquire malaria from anopheline mosquitoes. In areas where malaria is endemic large numbers of infants die before the age of 3, while many who live past this age struggle for years with anemia and poor general health. Under these circumstances it is extremely difficult to maintain existing population levels, much less recoup earlier losses (Boyd 1949: 566; McElroy and Townsend 1979: 87-88). It is equally difficult to maintain cultural traditions.

Dysentery and Typhoid

Malaria was not the only chronic infectious disease that made life difficult or impossible for the Amerindian. Europeans apparently brought with

them several other diseases, most notably dysentery and typhoid. Prior to the Conquest, dysentery and typhoid were known in Europe as "campaign diseases" (Cloudsley-Thompson 1976: 137). Often the two maladies swept through Europe's finest armies and navies, killing thousands in several weeks time. It is not altogether apparent to what extent typhoid and dysentery continued this tradition after reaching the New World. The impression one gets from the historical record is that dysentery frequently waged a slow, debilitating war against the Amerindian — invading populations after they already had been weakened by smallpox, typhus, or measles. Dysentery and typhoid, however, frequently were confused with other diseases such as typhus (Ashburn 1947: 92; Cloudsley-Thompson 1976: 130). Both chronic diseases may, therefore, have raged in epidemic form, but were not recognized.

Like typhus, dysentery and typhoid occur most frequently under crowded and unsanitary conditions — when the human condition is at its lowest. Dysentery occurs in two forms, one of which is caused by a protozoan parasite (**Entamoeba histolytica**), and another caused by a bacterial (**Shigella** spp.) infection. Typhoid is also caused by bacterium (**Salmonella typhosum**), and all three diseases are transmitted via water and food that have been contaminated by feces or by house flies that have picked up bacteria or protozoa after settling on infected feces. Reportedly, the typhoid **bacillus** can survive for several weeks in food and untreated sewage, and roughly 5% of those who contract typhoid retain **Shigella** for many years, disseminating bacteria in their feces. Long-term carriers of amoebic dysentery are also common, but rare in the case of bacillary dysentery (Berkow et al. 1982: 104, 230; Cloudsley-thompson 1976:129-131).

After an individual ingests typhoid bacillus, the bacteria make their way to the blood stream, where they incubate for 3-25 days. At the end of this period, the patient suffers from headache, fevers, stomach and backache, constipation, and anorexia. Over the course of several weeks the patient's fever increases. As the fever gets worse the patient becomes emaciated and suffers mental confusion, delirium, involuntary muscle control, diarrhea, and anemia. The patient may also suffer from any number of atypical symptoms. Generally, all symptoms disappear after a month and the patient then begins a long period of convalescence — assuming the patient has not died from intestinal perforation or hemorrhaging, shock, or general toxemia (Berkow et al. 1982: 99-102; Cloudsley-Thompson 1976: 129-131).

The incubation period for bacterial dysentery is 1-4 days. During this time **shigella** penetrate and then multiply in the lining of the lower intestine. At the end of the incubation period the patient, particularly children, suffer from fever, headache, nausea or vomiting, distension, and abdominal pains. Several days later the patient begins discharging large quantities of bodily fluids, along with stools containing blood and mucous. These acute symptoms generally subside within a week in mild cases, or 3-6 weeks in severe cases. Those who die after contracting bacillary dysentery often succumb to shock, dehydration, or secondary bacterial infections (Berkow et al. 1982: 104-105).

Amoebic dysentery, which is caused by **Entamoeba histolytica**, takes between 3 weeks and 3 months to develop. During this time the infectious protozoa multiply, feeding on various bodily tissues and bacteria in the colon. At the end of the incubation period, the patient suffers from intermittent fevers, diarrhea, abdominal pains, and some passage of stools

containing mucus and blood. Although the symptoms and mortality rate for amoebic dysentery are not as great as bacillary dysentery, the former often lasts for many years and can result in death, particularly if the amoebae reach and then damage the liver (Berkow et al. 1982: 230-231; Cloudsley-Thompson 1976: 136-143).

The mortality rate for typhoid reportedly can reach 30% among untreated victims of the disease (Berkow et al. 1982: 101). This percentage must have been surpassed on numerous occasions during the early historic period in the New World, given the Amerindians previous lack of exposure to typhoid. Whether bacillary or amoebic dysentery also frequently contributed to epidemics with great mortality is not certain. Data to be discussed in chapter 5 suggest that dysentery was primarily a chronic illness, responsible for high infant mortality. Together with malaria, dysentery waged a constant war against the family, depriving parents of sons and daughters. This is still the case today in areas where bacillary dysentery is endemic (Berkow et al. 1982: 105).

Disease Vectors and the Routes of Contagion

The maladies discussed above are those that were most frequently mentioned or alluded to in early historical documents from northern New Spain¹⁹. Beginning with smallpox, each of these diseases first wrecked havoc in Mesoamerica. Here, despite tremendous early losses (Borah and Cook 1963), the native population remained sufficiently large and well integrated, and thus served as a reservoir of disease agents. Throughout the colonial period this reservoir received new strains of virus and other microorganisms from Europe and Asia via Veracruz and Acapulco. Many diseases thus became endemic or semi-endemic, and occasionally reached epidemic proportions in

southern Mexico. Significantly, often within a year or two of an epidemic in Mesoamerica, the diseases that were involved in the epidemic appeared in northern New Spain²⁰. It is often unclear, however, precisely how and when disease agents penetrated and subsequently reached epidemic proportions in the north. Since infectious diseases tend to follow established lines of communication and trade (c.f. Cook 1939a: 944), logic dictates that Spanish and Indian trade networks figured prominently in the movement of disease agents.

At the time of the Conquest native peoples throughout the Greater Southwest were linked by extensive exchange networks (c.f. Riley 1976). There is little or no evidence, however, that communities in the north were involved in regular exchanges with populations in the Valley of Mexico, Michoacan, or other areas of Mesoamerica (Kelly 1980; Weigand 1978, 1980). It remained for the Spaniards to forge close economic ties between southern Mexico and the Greater Southwest. These ties were sustained in large part by the **camino real de la tierra adentro**: the main road to the interior²¹. This important route of contagion was opened from Mexico City to Zacatecas between 1546 and 1550, principally to service the many mines that were founded at this time in and about Zacatecas. Between 1550-1580, the road was enlarged to service new mines that were opened to the north of Zacatecas, near Sombrete, Durango, Topia, Inde, and Santa Barbara. With the colonization of New Mexico, in 1598, the interior road again was extended further northward, this time to Santa Fe, some 1600 miles from Mexico City (Bakewell 1971; Moorhead 1958; Powell 1952; West 1949).

From its inception, the **camino real** of the interior witnessed a steady flow of goods and people. Initially, most commodities and laborers, including

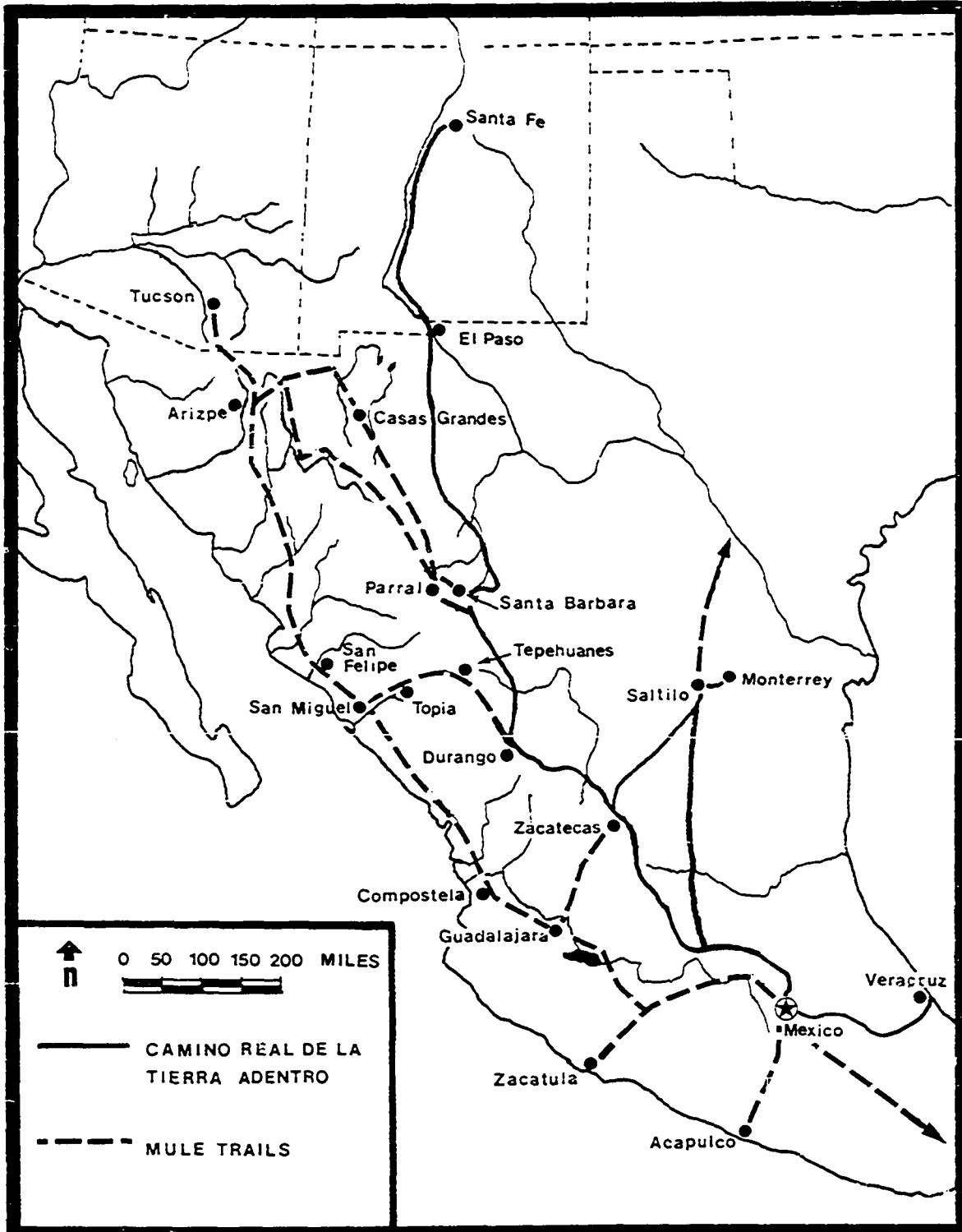


FIG. 12. SPANISH COLONIAL TRANSPORTATION NETWORKS.

Spaniards, African slaves, and free Indians²² travelled from Mexico City to Zacatecas in pack trains and small convoys of two-wheeled carts. To better serve the mining community and increase exports of bullion, the interior road was widened and otherwise improved so that, by 1555, wagons that carried upwards of 4,000 pounds were travelling to and from Zacatecas (Bakewell 1971: 20-21). Most wagons or *carros* travelled in groups of 20-40, together with muleteers and individuals on horseback or foot. Caravans bound for the northern frontier assembled in Mexico City during each month of the dry season, from October through July (West 1949: 86, 89, 130 f. 61). Travel conditions were optimal during the winter and spring and it was possible for a caravan from Mexico City to reach Zacatecas in approximately 4 weeks. Caravans that continued northward reached Santa Barbara in another 4-8 weeks, while those bound for New Mexico took approximately 9 months to complete the entire trip from Mexico City to Santa Fe²³.

The wagon and pack trains that plied the interior road linked numerous Spanish, Indian, and mission communities both within and without southern Mexico and northern New Spain. Freighters and muleteers, for instance, hauled hardware, reagents for mineral processing²⁴, oil, wine, cloth, and various other goods from Mexico City to Zacatecas (Mota y Escobar 1941: 146). Merchants in Zacatecas²⁵ also imported sugar, leather, pottery, grain, lentils, chickpeas, and fish from Michoacan and Guadalajara, while hats, blankets, clothes, cloth, wool, and soap were imported from Campeche, Oaxaca, and Puebla (West 1949: 81-82). While a good portion of these commodities were consumed in Zacatecas and its immediate hinterland, merchandise from the south also was shipped by wholesalers in Zacatecas to small retailers in Fresnillo, Sombrete, Durango, Inde, Topia, Santa Barbara,

and later, Parral. Many of these smaller mining settlements as well as Zacatecas and Parral also were linked to Saltillo, Cerralvo, and other towns in Nuevo Leon that furnished litharge and lead for mineral processing (De Leon 1909: 86; West 1949: 29). After the opening of mines at Parral, in 1631, miners in Durango and southern Chihuahua also purchased mules and salt from New Mexico and western Texas (West 1949: 36-37, 114, F. 140). By 1650 muleteers also were making frequent trips from Parral to Sonora, bringing supplies and equipment to miners along the Rio Moctezuma and upper Rio Sonora, and returning with silver, livestock, tallow, and other local items (DHM 1652: 179-209, op. cit., Dunne 1948: 65; West 1949: 29, 90). This commerce was conducted via two native footpaths that were used by the Concho, Suma, Jumanos, and other groups who travelled to northeastern Sonora to acquire cotton mantas, coral, turquoise, and other trade goods from the Opata (AGN 1678: 256-257; Salmeron 1966: 94-95; Hammond and Rey 1966: 76).

During the colonial period there was another road, albeit secondary, that facilitated the movement of people, goods, and disease agents from southern Mexico into the Greater Southwest. This mule trail came to be known as the **camino real** of the Pacific coast, and was blocked out by Nuno de Guzman and later explorers. Rather than forging a new road, the early **conquistadores** actually followed a series of overlapping native trails that began in Guadalajara and extended down the western escarpment of the mesa central to Compostela²⁶. From here the coast road continued up through lowland Nayarit and Sinaloa to the Villa of San Miguel de Culiacan. After ca. 1565, a series of trails were incorporated into the coast road that led from San Miguel northward along the foothills of northern Sinaloa and

Sonora, and eventually into southern Arizona (Burrus 1967: map 43; Sauer 1932; West and Augelli 1966: 299-302; West 1949: 50) .

During the decades immediately following Guzman's conquest, the coast road witnessed relatively little movement of goods and people. It will be recalled that, by 1536, a paucity of gold and other riches prompted many Spaniards to abandon Nueva Galicia. The 100 or so Spaniards who remained at San Miguel and Compostela (Tello 1891: 250-254) used the coast road primarily to herd Indian slaves southward to Guadalajara and Mexico City²⁷. The coast road also was used by native burden carriers or **tamemes** that were exploited by Guzman's **encomenderos**. Coronado noted in 1538 that groups of 40 or 50 **tamemes** frequently travelled to and from Mexico City, loaded with merchandise (Hammond and Rey 1940: 38). Items that were taken southward probably included gold and silver from small pocket and placer mines; iron, hardware, clothing, and reagents were some of the many items that probably were brought back to Guadalajara, Compostela, and San Miguel. Because of heavy summer rains that turned lowland Nayarit into a veritable swamp, this commerce was conducted primarily during the winter or dry season²⁸. Indeed, once summer rains began in June, all forms of transport beyond Compostela ceased for four, and sometimes, six months. This situation obtained throughout the colonial period, even after pack trains replaced **tamemes** (Mota y Escobar 1940: 99-100; Paso y Troncoso 1939: IV, 183).

During the second half of the sixteenth century there was a significant increase in the volume as well as the types of goods and people that used the coast road. After Ibarra pacified and re-settled Chametla in 1565, the small Spanish and mestizo population of Nayarit and Sinaloa began exporting

salt to the burgeoning mining frontier on the eastern slopes of the Sierras as well as to New Spain²⁹. Spaniards at Chametla, San Miguel, and other points along the coast also used native labor and technology to harvest tons of shrimp, oysters, and fish for export³⁰. In time, exports of salt and fish were supplemented with lard, beeswax, raw cane sugar, bananas, oranges, and other tropical and semi-tropical fruits. A good portion of these products were hauled by muleteers southward along the coast road to Guadalajara. Here a thriving commercial center developed after 1560 that funneled commodities over the Sierras to Zacatecas and down to Mexico City³¹. Pack trains from Mexico City in turn brought rope, wine, cloth, and other commodities to Guadalajara, which were then hauled to Compostela, Chametla, and the Villa of San Miguel de Culiacan (Arregui 1946: 103-104; Cuidad Real 1976: II, 122; Mota y Escobar 1941; Navarro Garcia 1967: 29-37; West 1949: 77, 79, 90).

Although large amounts of fish, salt, and other products from Nayarit and Sinaloa reached the mining frontier via Guadalajara and Zacatecas, an equally large, if not greater share of goods were transported over the Sierras via the "Topia Road"³². This important route of contagion stretched for some 70 miles from the Villa of San Miguel up into the Sierras, to the **Real** of Topia. From here the "road" continued for another 70 miles through and then down the eastern slopes of the Sierras to Tepehuanes, a short distance from the **camino real** of the interior. This latter section of the road was used as early as the 1570's by muleteers who brought equipment, reagents, foodstuffs and other necessities to the **Real** of Topia, and who returned to Durango with silver ore. Subsequently, muleteers saw the opportunity of using Topia as a way-station³³. With their **recuas** loaded with wheat, chile, cloth,

mercury, and other products from Zacatecas, Durango, and Santa Barbara, muleteers made their way up the eastern slopes of the Sierras to the *real*, whence they descended the western escarpment of the Great Divide. At the Villa of San Miguel³⁴ and other settlements along the coast, the muleteers sold their wares, re-loading their mules with salt, fish, fruit, silver and other items that were then taken back over the Sierras. During the dry season muleteers reportedly could complete the entire 140 mile journey from Tepehuanes to San Miguel de Culiacan in less than 2 weeks (West 1949: 77, 79, 90; West and Parsons 1941).

In summary, then, Spanish mining activity along the eastern slopes of the Sierras led to the development of an extensive transportation network during the second half of the sixteenth and early seventeenth centuries. At the heart of this network were the coast and interior roads that linked Mesoamerica and the Greater Southwest, and several mule trails, the most important of which was the Topia Road, that linked both the eastern and western slopes of the Sierra Madre. Significantly, all three roads or trails were frequented primarily during the winter or dry season (Mota y Escobar 1940: 99-100; Paso y Troncoso 1939: IV, 183; West 1949: 86, 89). This is precisely when diseases like smallpox, influenza, and measles have their highest incidence, and when many epidemics began in southern Mexico during the historic period (Cooper 1965; Gibson 1964: 137). Because diseases like smallpox, measles, typhus, typhoid, and malaria have an incubation period of upwards of 2 or more weeks, there undoubtedly were many times when individuals left Mexico City without knowing they had contracted these diseases. Since it took only 4-6 weeks to travel from Mexico City to Zacatecas or Guadalajara, those who left the Capital harboring disease had

only to survive or transmit their infections to one or two other susceptibles to insure the arrival of disease agents in Nueva Vizcaya and Nueva Galicia.

Spaniards, Indians, and slaves were not, however, the only disease vectors. As we have seen, textiles, particularly cotton, also can harbor smallpox and perhaps measles and influenza virus. Cloth was in fact the principal medium of exchange in northern New Spain during the colonial period (Bolton 1948: II, 80; West 1949: 81). Because native mine workers were avid for cloth and clothing, many Spaniards used payment in cloth to attract Indians to work in the mines of Durango and Chihuahua (West 1949: 51, 81)³⁵. Accordingly, textiles were the largest item by quantity imported by merchants in Zacatecas and lesser settlements in Nueva Vizcaya (West 1949: 82). Cotton, wool, and cloth of varying quality and manufacture also were imported in large quantities by the Jesuits (e.g. Polzer 1972: 234-239) and the Franciscans (e.g. Scholes 1930: 100, 187). The chances were excellent, therefore, that some epidemics originated with textiles as opposed to people that harbored disease agents.

Whatever the disease vector, once smallpox, malaria, and other maladies reached Zacatecas or Guadalajara, opportunities abounded for the further spread of disease. This is true with respect to both insect-borne and non-insect borne diseases³⁶. Because of the sheer numbers of people and the large volume of goods that frequented the interior road, the probabilities were particularly high that diseases introduced in Zacatecas would spread northward among mining communities and related settlements along the eastern slopes of the Sierras. During the colonial period disease was in fact quite common in the mining camps and towns of Durango and southern Chihuahua (West 1949: 54), particularly typhus and respiratory infections such

as pneumonia and influenza (Mota y Escobar 1940: 148). Apparently both maladies flourished in the cool climate and the crowded and unsanitary living conditions that Indian, mestizo, and African mine workers often endured (Mecham 1927: 220-221). Logic dictates that the mission caravans, which stopped at Zacatecas, Durango, Inde, and Santa Barbara on their way north, also helped to spread disease as far as Santa Fe³⁷. Because of the large volume of goods and people that frequented the Topia Road, the probabilities were even higher that diseases unleashed in Durango would make their way over the Sierras to Sinaloa. Similarly, disease agents that penetrated Sinaloa via the coast road could easily have spread over the Sierras via the Topia Road to Durango and southern Chihuahua.

There were, in fact, many opportunities for the spread of disease once close economic ties were established between Mesoamerica and the Greater southwest during the third quarter of the sixteenth century. Predictably, after 1593, when the Jesuits began working in northern New Spain, opportunities for the introduction and spread of disease increased dramatically. Like their Franciscan counterparts, the Jesuits relied on southern Mexico and Nueva Vizcaya for items such as wine, wheat flour, chocolate, church ornaments, rosary beads, and cloth. Many of these goods were hauled from southern Mexico up the interior and coast roads to Jesuit "headquarters" or **Collegios** in Durango and San Felipe, whence they were distributed to individual mission districts. In the 1600's, mission communities on both sides of the Sierra Madre also occasionally sold surpluses of food and cattle to miners and other Spaniards in settlements like Durango and the Villa of San Miguel (AGN 1657a: 32-36; West 1949: 69). These contacts increased the chances that diseases that originated in the south would reach

mission communities at great distances from the mines in Durango and Chihuahua and to the north and west of the villa of San Miguel de Culiacan. Actually the historical record indicates that there were numerous occasions when smallpox and other maladies spread well beyond the mission and Spanish mining frontiers.

NOTES TO CHAPTER IV

1. The belief that disease episodes in the New World were God's way of punishing those who violated his laws or teachings may have led to some epidemics and their consequences not being recorded during the early historic period. This apparently was the case during the Middle Ages, when many medieval scribes failed to mention the plague and its catastrophic consequences, apparently because they feared that they would be seen as critics of God's work (Biraben and Le Goff 1975: 48-50).
2. Only occasionally did Spaniards writing in the 1500's note or allude to the spread of disease from Mesoamerica to the Greater Southwest. In 1593, for instance, Father Gonzalo de Tapia alluded to the spread of smallpox from Michoacan to Sinaloa: "We have all been very busy in baptizing all the dying and burying them, for the pestilence which took those who died in Michoacan is widespread here" (Shiels 1934: 142). Rarer still were comments like De Leon's (1909: 148) regarding a boy who contracted smallpox in New Spain in 1646, and who brought the disease to the Villa of Cadereyta, whence it spread throughout Nuevo Leon.
3. Smallpox constitutes 3 clinically distinct maladies. Historically, **Variola major** has been the most important and lethal form of smallpox. Other, milder forms of smallpox include **variola minor**, and **Variola sine-eruptione**, a protracted form of smallpox of little consequence that apparently occurs among individuals who are immune to the disease (Deutschmann 1961: 7; Dixon 1962).
4. Although it is not common, there are many recorded instances of individuals contracting smallpox after being exposed to **variola virus** for one or two minutes (Deutschmann 1961: 7; Dixon 1962: 301). —
5. One of the better known instances of cloth or cotton figuring in an epidemic involved the Mandan Indians of the upper Missouri River. In 1837 the Mandan were largely destroyed during an epidemic that apparently began after a steamboat arrived from down river and a Mandan stole an infected blanket from a watchman on board who was dying from smallpox (Jensen 1972).
6. Although the Nahuatl term **cocoliztli** often referred to any great sickness (Gibson 1964: 448), the term frequently was cited along with smallpox (**viruelas**) in reports of epidemics in northern New Spain (e.g. Hackett 1937: 108). This correlation may reflect the fact that malignant smallpox or **viruelas** had distinctive clinical symptoms, while fulminating smallpox or

cocolistli killed its victims before symptoms like a rash could be manifested.

7. This figure increases if a population exposed to smallpox has a large number of young children and adults over 40, while a decrease in mortality seems to occur when there are a larger proportion of patients within the age-group 10-20 (Dixon 1962: 325-326). Mortality rates will also vary depending on the number of pregnant women in a population, as mortality from *variola major* appears to reach 50% among pregnant women (Dixon 1962: 326).

8. It may also be true, as Ashburn (1947: 90) suggests, that measles frequently was ignored because it was less revolting and was not feared as much as smallpox (Ashburn 1947: 90).

9. Measles patients are particularly susceptible to streptococcal infections (Berkow et al. 1982: 181). Many in the past who died from these infections are saved today by penicillin and other antibiotics.

10. There are 3 distinct yet related species of influenza virus, designated A, B, and C. Sub-types of Influenza A have figured most prominently in human history, and are referred to here simply as influenza.

11. In modern times, virulent strains of influenza that have resulted in pandemics have appeared, on the average, once in a decade (Berkow et al. 1982: 192).

12. As late as the nineteenth century, typhus often was confused with the plague, typhoid, smallpox, measles, and numerous other diseases (e.g. Ashburn 1947: 92; Cloudsley-Thompson 1976: 106; Zinsser 1934: 241).

13. Other types of typhus (Murine, Scrub, Rocky Mountain) were no doubt important in the New World, although their origins and consequences are difficult to evaluate, given the failure to differentiate *Rickettsial* diseases during the early historic period.

14. Lice have precise thermal preferences, and quickly move from over-heated and dead bodies — what you would expect of infected individuals — to healthy hosts. This behavior increases the chances that typhus will spread (Cloudsley-Thompson 1976: 105).

15. The louse, unlike the anopheline mosquito, which transmits malaria through the insertion of a proboscis, does not transmit *Rickettsia* when it bites a host (Busvine 1976; Cloudsley-Thompson 1976: 102-103; Zinsser 1934).

16. The lower and upper limits of the this 8-12 day period correspond with the incubation periods for measles and smallpox, respectively. Both diseases produce a rash and share other symptoms with typhus, which explains in part why the three diseases often were confused.

17. As Zinsser (1934: 220) points out, historical descriptions of typhus characteristically emphasize the unusual headache that follows the incubation period.

18. Different sub-species of anopheline mosquitoes, the only known malaria vector, also may have been brought to the New World (McNeill 1976: 186).

19. Diseases such as mumps, chicken-pox, and scarlet fever probably were also important during the period prior to 1660. The available evidence nevertheless suggests that they were of minor importance as compared to smallpox, measles, influenza, typhus, malaria, typhoid, and dysentery.

20. Once smallpox or measles penetrated the Greater southwest they do not appear to have become endemic or semi-endemic. For this to have happened the size and density of the aboriginal population would have had to have been quite high. Studies of measles endemicity indicate, for example, that measles can fade out in a closely settled population of 350,000 and possibly over 500,000 (Black 1966).

21. The nature and extent of the interior road and the traffic it handled during the colonial period has been discussed at length by numerous researchers (e.g. Bakewell 1971; Moorhead 1958; Powell 1952; Scholes 1930; West 1949; West And Augelli 1966).

22. A report compiled in 1571 by the Senior *oidor* of the Audiencia of Guadalajara indicated there were about 1500 Spanish householders in Nueva Galicia, distributed among Guadalajara, Zacatecas, and six other towns and 15 mining settlements (Parry 1948: 121). As early as 1550 there reportedly were over 2,000 households of black slaves in Zacatecas (Mecham 1927: 52). Some twenty years later, in 1570, there reportedly were 2375 black slaves in Nueva Galicia, 500 of whom were working in and around Zacatecas (Aguirre Beltran 1940: 209-211). Figures from 1581 indicate there were more than 6,000 negroes and Indians working in the mines of Nueva Vizcaya (Paso y Troncoso 1940: XV, 53).

23. The travel times given here are estimates. According to Captain Diaz y Diaz (1869), the travel distance from Mexico City to Zacatecas was 143.4 leagues (372 miles). Since many wagon trains apparently travelled 5 or 6 leagues a day along the interior road (e.g. Moorhead 1954: 27, 116), it should have taken about a month for caravans from Mexico City to have reached Zacatecas. According to West (1949:88), the dry season trip from Mexico City to Santa Barbara took 3-4 months (West 1949: 88). Caravans bringing supplies to New Mexico took approximately 9 months to complete the entire trip from Mexico City to Santa Fe. This last estimate is based on the assumption that it took 1 month to go from Mexico City to Zacatecas, and another 7 or 8 months to go from Zacatecas to New Mexico (Scholes 1930: 98, f. 121).

24. During the colonial period 2 techniques were used to process mineral ore. The oldest method (lead fusion and cupellation) involved primarily the use of lead and litharge as reagents, while the "patio process", introduced after @1550, employed mercury, iron and copper sulphates, and salt as reagents (see Mecham 1927; 210-221; West 1949: 25-34).

25. By 1605 there were some 50 merchants in numerous settlements in Durango and southern Chihuahua that apparently purchased their supplies from wholesalers in Zacatecas (Bakewell 1971: 78-79; Mecham 1969: 65; Mota

y Escobar 1941: 146).

26. Most Spanish colonial roads in the New World were in fact coterminous with indigenous paths or trails (Sauer 1932; West and Augelli 1966: 299). The trails that became the Pacific coast road probably were used several centuries prior to Guzman's conquest by Mixteca-Puebla traders who travelled from the Valley of Mexico to Sinaloa (Kelly 1980). At the time of the Conquest, the northern-most trails, beginning near the Rio Sinaloa, were frequented by individuals and trading parties that exchanged coral, parrot feathers, shell, turquoise, buffalo robes, and a variety of other goods (Riley 1976). These trails apparently were lined at unknown intervals with cairns where offerings were made to what appears to have been a deity or guardian spirit who watched over and aided weary travelers (e.g. Hammond and Rey 1966: 219-220; Hodge et al. 1945: 43; Lumholtz 1902: II. 282 ; Nentvig 1764: 60; Treutlein 1949: 228). This behavior involving roadside cairns may have its origins in Mesoamerica, where travellers and merchants among groups such as the Maya made gifts at wayside altars to **Shaman-ek**, the god of the North Star (Blum 1932: 434-435).

27. Although the number of Indian slaves exported from Sinaloa declined at an early date, contributing to Spanish disenchantment with the region, slave trading continued throughout the sixteenth century (see Paso y Troncoso 1939: IV, 183; VI, 40; Zavala 1957: 203-204).

28. San Miguel de Culiacan was 80 leagues from Compostela and 160 leagues from Guadalajara (Beaumont 1932: 414-415). During the dry season it probably took three weeks to a month to travel from Guadalajara to San Miguel de Culiacan.

29. In 1581 there were around 140 **vecinos** or Spanish householders in Compostela, Chametla, San Miguel, and the Villa of San Juan on the Sinaloa River (Paso y Troncoso 1940: XV, 52). In 1605, Governor Urdinola reported that the inhabitants of Chametla, alone, sent 6,000-20,000 **fanegas** (15,000-51,000 bushels) of salt each year to a dozen or so mining centers on both sides of the Sierras (Navarro Garcia 1967: 30).

30. By 1605 the residents of Chametla reportedly were supplying a large percentage of the prepared fish consumed in not only Nueva Galicia, but also Nueva Vizcaya and New Spain (Mota y Escobar 1941: 87-88).

31. In 1560-61 Guadalajara became the official seat of the **Audiencia** and **treasury (Caja Real)** as well as the episcopal seat of Nueva Galicia. As the city's economic and political fortunes rose, so did its population, from 80 residents in 1554 (Parry 1948: 46, f. 5) to more than 500 residents in 1604 (Mota y Escobar 1941: 46-47). In 1605, Guadalajara had 22 resident merchants, many of whom imported items such as clothes, wine, vinegar, oil, and rope from Mexico City. According to Mota y Escobar (1941: 47-47) there also were numerous peddlers ("**merchafiles**") who operated out of Guadalajara, selling "small items" in settlements throughout Nueva Galicia.

32. The Topia Road actually was one of two mule trails the crossed the sierras (West and Parsons 1941). Apparently after Ibarra pacified Chametla, in 1564, miners and muleteers forged a trail from Mazatlan over the Sierras

to Durango. This mule trail does not appear to have been used as much as the Topia Road, owing perhaps to hostile "Caribs" in the Sierras (Hammond and Rey 1928: 117-118).

33. By 1605 the **real** of Topia had 10 merchants and had become an important supply center for local miners as well as those working in the more distant **reals** of San Andres, San Hipolito, Las Virgenes, and Sianori (Mecham 1969; Mota y Escobar 1941; West and Parsons 1941: 410-411).

34. In 1605 there were 5 or 6 stores in the Villa of San Miguel that sold wine, oil, linen, clothing, and other goods that were imported from New Spain via the camino real of the coast and the Topia road (Mota y Escobar 1941: 103).

35. In an early letter from the mission of Parras, Father Arnaya noted that some Zacateco Indians travelled 60 and 80 leagues to work for Spaniards and to obtain clothing (DHM 1601: 67-68). As late as the 1930's, the most common transaction between Mexican muleteers and Tarahumara Indians was the barter of surplus corn for cotton cloth (Bennett and Zingg 1935: 157-158).

36. The historical record contains numerous references to Spanish explorers, soldiers, and priests who suffered from Malaria or **tercianias** (e.g. Alegre 1956: 144, 152, 161; AGN 1653b: 379; Carrera Stampa 1955: 40; Nieremberg 1889: 408, 430; Tello 1891: 46-47; Treutlein 1949: 213-214). There also are numerous historical references to lice and what apparently were anopheline mosquitoes, the only known disease vectors for typhus and malaria, respectively (e.g. Alegre 1958: 77; Arregui 1621: 46; Carrera Stampa 1955: 125, 175; Ciudad Real 1976: II, 122; DHM 1598: 60; Mota y Escobar 1940: 85-86; Nentvig 1980: 33; Treutlein 1949: 137-138). Although it is difficult to demonstrate that the mosquitoes mentioned by early observers were in fact of the anopheline variety, the Jesuit missionary Ignaz Pfefferkorn noted that the mosquitoes in Sonora were particularly unbearable at night, when they invaded houses (Treutlein 1949: 138). This behavior is characteristic of **Anopheles maculipennis freeborni**, the principal malaria vector in northwest Mexico (Ross and Roberts 1943; Russell et al. 1943: 22). Today, and apparently in the past, **Anopheles maculipennis freeborni** also is found in the American Southwest, together with **Anopheles maculipennis aztecus** (Ross and Roberts 1943). **Anopheline albimanus** is the principal malaria vector along the Pacific lowlands, where in modern times it has been responsible for a very high mortality rate from malaria (Faust 1949: 756: 757).

37. From 1609, when the Crown assumed authority for the support of the Franciscan missions of New Mexico, until 1630, supplies for the missions moved north every 5 or 6 years (Scholes 1930: 94). After 1630, the length of time between caravans was reduced and regularized, such that supplies for the missions arrived in New Mexico every 3 years (Scholes 1930: 93-94). Like their commercial counterparts, the mission caravans were escorted by a detachment of soldiers and consisted of 30 or more **carros**, each of which carried close to 4000 pounds of goods. A large herd of cattle, draft animals, and mules also accompanied each caravan, as did settlers, traders, missionaries, and others travelling north (Moorhead 1958: 33). Significantly, the contract for the caravan of 1631 allotted each priest 35 pesos worth of medicines, out of a total supply allotment of 450 pesos (Scholes 1930:

101-102). More than 900 pesos were spent on medicines and drugs for the mission Caravan that was sent in 1625. This is a substantial figure, given that a little over 18,000 pesos were spent on all goods and expenses for the caravan, and covered everything from 13 mules with saddles and bridles to two **arrobas** of capers (Hodge et al. 1945: 109-124). One indication of the apparent frequency with which people became ill while travelling from Mexico City to Santa Fe is an entry in the contract that was drawn up for the mission caravan of 1629, which states that four dozen hens were sent northward with the supply train, "for those who may be sick during the journey" (Scholes 1930: 102).

CHAPTER V

DISEASE EPISODES IN NORTHWESTERN NEW SPAIN, 1520-1660

With a knowledge of Old World diseases and Spanish and Indian trade networks, we can turn now to the empirical evidence of disease. Both the quantity and quality of the evidence increases after 1591, when the Jesuits began a running commentary on life in northern New Spain. Prior to the arrival of the Jesuits, there was a small and largely illiterate Spanish population in Nueva Galicia and Nueva Vizcaya. The evidence from 1520-1590 is, therefore, spotty, and often we must rely on indirect evidence to determine whether northwestern New Spain was affected during this earlier time period by epidemics that are known to have exacted a heavy toll in Mesoamerica. This is true with respect to the first New World pandemic of smallpox, which raged at the time of the Conquest of Mexico.

The Smallpox Pandemic of 1519-26

The smallpox pandemic of 1519-26 began on the island of Santo Domingo during the winter of 1518-19¹. Over the course of several weeks, smallpox killed approximately 30% of Santo Domingo's native population (Sauer 1969: 205). *Variola* subsequently spread to Puerto Rico, Cuba, and throughout the Greater Antilles (Pacheco y Cardenas 1864: I, 367-368; Wright 1916: 86-87). In 1521, smallpox was brought to the mainland from Cuba by an expedition that was sent to arrest Cortes for his unauthorized march on

Tenochtitlan. Once ashore, smallpox raced inland, arriving at the Mexica capital several weeks before Cortes and his would be jailers laid siege to the city. An effective "fifth column", smallpox ravaged Tenochtitlan's defenders, enabling Cortes and his followers to capture the city. Even before the city fell, smallpox spread to distant parts of the Aztec empire as well as to Michoacan. Ambassadors of the Tarascan King reportedly introduced smallpox in Michoacan after acquiring the disease during a visit to the besieged Tenochtitlan (Craine and Reindrop 1970: 65-68). About the time Michoacan suffered, smallpox appeared in the Yucatan (Landa 1941: 42) and Guatemala (Recinos 1953: 115-116). By 1524, smallpox was introduced in Panama, and a year or so later, the disease spread down through the Inca empire. Here too, countless natives perished² and the fabric of Indian society was irreparably damaged (Cieza de Leon 1959: 52, 252-53; Crosby 1967).

Although direct evidence is lacking, several researchers have suggested or implied that smallpox spread well up into the American Southwest, presumably via the central plateau (Dobyns 1983: 12-13; Nixon 1946: 53). The chances that this happened seem slight, however, given the apparent absence of regular trade between the Valley of Mexico and areas to the north. It will be recalled that the Chalchihuites folk, who are thought to have had close economic ties with Mesoamerica, withdrew or disappeared from Durango and southern Chihuahua in the fourteenth century (Kelley 1980, 1981; Weigand 1981). It does not appear that the Aztec *pochteca* subsequently revived long-distance trade with populations in Durango or areas further to the north (Acosta Saignes 1945; Rees 1975). Mixteca efforts to open or maintain trade contacts with the north may have been blocked by the Tarascans (Kelley 1980; Weigand 1978, 1981) and hostile *Chichimeca*. At the time of the

Conquest, the **Chichimecs** in Queretaro were staunch adversaries of the Mexica, and successfully had resisted numerous attempts at invasion and conquest (Bancroft 1886: 539-546). Hostile relations may have limited contact between the Mexica and their northern neighbors, thus restricting the spread of smallpox. It should be noted, however, that even if smallpox penetrated Queretaro, it is unlikely that the small, and widely dispersed **Chichimec** bands of the **mesa central** could have sustained the transmission of **variola** over a distance of several hundred miles.

In their analysis of the aboriginal population of central Mexico, Borah and Cook (1963: 87-88) alluded to the possibility that smallpox spread from Michoacan up the west coast of Mexico into lowland Nayarit and southern Sinaloa. Once again, the evidence supports a different conclusion. Specifically, had smallpox spread up the west coast of Mexico, presumably Francisco Cortes (1524) or the numerous chroniclers of Nuno de Guzman's expedition (1530-31) would have mentioned or alluded to recent disease-induced reductions in population. The explorers, as we have seen, reported that west Mexico was well populated with sophisticated cultures (Bancroft 1886: 60-64; Carrera Stampa 1955; Pacheco y Cardenas 1870: XI; Sauer 1948; Sauer and Brand 1932). The explorer's comments, in effect, suggest that smallpox did not spread much beyond the northwestern boundary of the Tarascan empire between 1519-26. Like the Mexica, the Tarascans were bounded on the north and west by hostile Chichimecs and Jalisco Indians (Lopez Sarrelangue 1965: 29-30). Conflict and animosity presumably limited contacts between the Tarascans and their neighbors, apparently to the point where the northward spread of smallpox was blocked.

Guzman's Expedition of 1530-31 and the Introduction of Chronic

Infectious Diseases in Nayarit and Sinaloa

Although west Mexico apparently escaped the smallpox pandemic of 1519-26, Guzman's expedition in 1530-31 unleashed several pathogens in Nayarit and Sinaloa that rivaled smallpox in terms of its impact on native peoples. It will be recalled that Guzman left Mexico City in December, 1529, accompanied by several hundred Spaniards and an Indian army that grew to include some 15,000 Tlaxcalan, Aztec, and Tarascan allies. In September of 1531, while Guzman was encamped for the winter along the Rio Acaponeta, at Aztatlan, many of his troops perished during an epidemic that was characterized by intense fever, chills, evacuation by stool, and prostration (Carrera Stampa 1955: 108-109; 138-139). Although two accounts of the epidemic indicate that some Spaniards became ill (Carrera Stampa 1955: 138; Pacheco y Cardenas 1870: XIV, 439), it was primarily Guzman's allies and Tarascan burden carriers that suffered during the epidemic. Garcia del Pilar, who accompanied Guzman, indicated that more than 8,000 allies and *naburias* perished (Carrera Stampa 1955: 185). Other eyewitness accounts also mention or allude to thousands dying (Carrera Stampa 1955: 108-109, 154; Pacheco y Cardenas 1870: XIV, 439).

The epidemic that swept through Guzman's army while it was encamped along the Rio Acaponeta, apparently spread to native settlements in the province of Aztatlan. The author of the Third Anonymous *Relacion*, in particular, noted that each time that Guzman's men ventured beyond their encampment, apparently in search of food and slaves, they returned with many people who were sick and who subsequently died (Carrera Stampa 1955: 138). The author of the First Anonymous *Relacion* also noted that many pueblos in the province of Aztatlan were depopulated, and that the few

natives who survived fled 30 or 40 leagues up into the Sierras (Carrera Stampa 1955: 154). Before the epidemic, Aztatlan had a population of 22,000 (Mota Padilla 1924: 105).

Guzman's army and the inhabitants of Aztatlan probably suffered from several maladies. The clinical symptoms mentioned (intense fever, chills, prostration, stools) are highly suggestive of dysentery (*Shigelia* spp.), typhoid, and malaria (Ashburn 1947: 92; Cloudsley-Thompson 1976: 137; Kitchens 1949: 1017)). Members of Guzman's army could have harbored all three chronic infectious diseases³. Typhoid and dysentery were particularly common at the time among armies and navies in Europe, and frequently were referred to as "campaign diseases" (Cloudsley-Thompson 1976: 137). Both dysentery and typhoid are most often spread via drinking water that has been contaminated with bacterium liberated from sewage. Significantly, the epidemic that swept through Guzman's army followed a tropical storm that inundated Guzman's bivouac and the surrounding coastal plain, washing away the armies' supplies⁴.

The tropical storm as well as the heavy summer rains that preceded it, also provided an excellent environment for malaria. The highest incidence of malaria in the American tropics occurs in September and October, when heavy rains and tropical storms frequently create large expanses of standing water that allow anopheline mosquitoes to proliferate⁵ (Boyd 1949a: 634). Interestingly, several of Guzman's officers (Carrera Stampa 1955: 125, 175) as well as many later observers (e.g. Arregui 1946: 46; Ciudad Real 1976: II, 122; Mota Padilla 1924: 118; Mota y Escobar 1940: 85-86; Tello 1891: 611) complained of the large number of mosquitoes in lowland Nayarit and Sinaloa. While it cannot be determined if these

mosquitoes were anopheline — the only known malaria vector — lowland Nayarit and Sinaloa have been home to Anopheline **Albimanus**⁶ in modern times (Faust 1949: 756). This particular sub-specie of anopheline mosquito occurs in the lowlands along both the Atlantic and Pacific coasts of North America, and was responsible in 1932 for a serious epidemic on the island of Jamaica. Like the epidemic that devastated Guzman's army, the epidemic in Jamaica began after a tropical storm closed culverts and standing water accumulated, allowing **A. Albimanus** to proliferate (Boyd 1949a: 642-643).

If anopheline mosquitoes were in fact present at Aztatlan in large numbers, then all that was required for a malaria epidemic to sweep through Guzman's army and the local population was the presence of one or more individuals harboring **plasmodium**⁷. Was such an individual present? Guzman indicates there was. Specifically, in his **Memoria**, Guzman noted that shortly after he arrived in the New World, in 1525, he contracted "**tercianas continuous y despues cuartanas dobles**" (Carrera Stampa 1955: 40). Although clinical manifestations often are an inadequate basis for distinguishing different types of malaria (cf. Boyd 1949: 551), Guzman's reference to **tercianas** and **cuartanas dobles** undoubtedly denotes quartan malaria. This particular form of malaria, caused by **Plasmodium malariae**, has a distinctive 72 hour paroxysm cycle that results in a fever every third day — what Guzman and other Spaniards referred to as **tercianas**. It frequently happens with cases of **P. malariae** that the cycle of paroxysms changes, such that the patient experiences 2 days of fever separated by 2 afebrile days (Kitchens 1949: 1017-1021). This change in the cycle of paroxysms is apparently what Guzman referred to as **cuartanas dobles**. Significantly, frequently those who survive a primary attack of quartan malaria retain **piasmodium** in their blood

for many years, and while most may rarely exhibit clinical symptoms, they nevertheless are a source of *Plasmodium* that can be readily transmitted to others via anopheline mosquitoes (Boyd 1949: 554; Harrison 1978: 117; Kitchens 1949: 1017).

It is quite possible, therefore, that Guzman was a source of malaria, which, along with dysentery and typhoid, swept through his army and the inhabitants of Aztatlan⁸. An outbreak of malaria, combined with dysentery and typhoid, would explain the epidemic's high case frequency and mortality rates. The introduction and subsequent spread of chronic diseases in the lowlands also is in keeping with the precipitous decline and the lack of recovery that characterized native population trends in northern Nayarit and Sinaloa during the decades following Guzman's conquest⁹ (Bancroft 1886: 552-553). It was not only chronic diseases, however, that exacted a heavy toll on the native population. After Guzman's conquest and the forging of economic ties with Mesoamerica, acute infectious diseases also wrecked havoc in Nueva Galicia, as is reflected in the measles pandemic of 1530-35.

The Measles Pandemic of 1530-1535

Like the earlier smallpox episode, the measles pandemic of 1530-1535 apparently began in southern Mexico and quickly spread southward to Central America and Peru (Ashburn 1947; Dobyms 1963; McNeill 1976). After raging for several years in Mesoamerica¹⁰, measles appeared in northern Nayarit and Sinaloa, along with another malady characterized by "bloody stools" (Tello 1891: 251-255). Although we can not be certain, "bloody stools" probably denotes dysentery or typhoid (Cloudsley-Thompson 1976: 129-131, 136). As we have seen, one or both chronic maladies apparently were unleashed in Nayarit and southern Sinaloa during Guzman's conquest of Nueva

Galicia. During the winter of 1534-35, "bloody stools" and measles killed thousands of natives in the province of Chametla¹¹. Indeed, so great was the loss of native life, and thus, of **tributarios**, many of Guzman's **encomenderos** left Chametla, abandoning Espiritu Santo and other nearby Spanish outposts. There was a similar exodus from the Villa of San Miguel, after measles and bloody stools reached epidemic proportions in the province of Culiacan¹². According to Tello (1891: 250-251), both maladies killed over 130,000 natives, apparently along the Rio Elota, San Lorenzo, Culiacan, Tamazula, and Humaya¹³. Shortly after the epidemic subsided, the Alcalde Mayor of San Miguel de Culiacan, Cristobal de Tapia, visited the province, finding many villages wholly deserted, including some where the stench of hundreds of rotting corpses proved unbearable (Tello 1891: 250-251).

Fray Antonio's brief comments clearly indicate that measles and "bloody stools" had a devastating impact on the aboriginal population of northern Nayarit and southern Sinaloa. Unfortunately, Tello, who is our only source for this disease episode, gave precious few details about the areal extent of the epidemic. Tello (1891: 250-251) did note, however, that the epidemic occurred around the time of the native uprising of 1533-34, when many natives in Sinaloa abandoned their villages along the coastal plain and fled up into the foothills and Sierras. This flight may have facilitated the spread of measles and other diseases to the Tetebatas and Acaxee in the foothills above the coastal plain. Unfortunately, in the absence of archaeological evidence or the testimony of European observers, there currently is no way of knowing for sure if this was the case.

Data also are lacking that would clarify whether the epidemic affected the Cahita, Guasave, and other groups to the north of the Culiacan Valley.

Spanish slave raiding in northern Sinaloa, which was initiated in 1533 by Diego de Guzman, may have disrupted trade and communication between Tahue and Cahita speakers, thus limiting the spread of disease. It will be recalled that around the time of the epidemic, in 1536, Cabeza de Vaca and his companions completed the last leg of their remarkable journey across North America. Neither Cabeza de Vaca nor the authors of the Joint Report mentioned or alluded to measles or bloody stools, although the would be explorers did encounter many Indians in western Texas and Sonora that were "ill" (Cabeza de Vaca 1944: 43-47; Hedrick and Riley 1974: 47-52). However, certain statements by Cabeza de Vaca and his companions suggest that many illnesses were more imagined than real. Both accounts, for example, indicate that many Indians felt better or recovered immediately after the four Christians blessed, rubbed, or otherwise attended to their illnesses (Cabeza de Vaca 1944: 43, 45; Hedrick and Riley 1974: 49, 52). Recoveries of this type as well as the failure to mention Indian deaths from disease¹⁴ do not support the idea that measles or other Old World diseases spread much beyond the Culiacan Valley prior to 1536.

Actually the only illness or symptoms specifically mentioned by Cabeza de Vaca are headaches (**malos de cabeza**), dizziness (**malos de modorra**), and exhaustion or lameness (**estaban tollidos**) (De Vaca 1944: 43-45). All three ailments could have been caused by malnutrition and hunger, which were widespread in western Texas at the time (e.g. Cabeza de Vaca 1944: 47; Hedrick and Riley 1974: 47). The only specific reference to symptoms in the Joint Report is a curious comment about there being many Indians in western Texas "who were blind, and a great number of one-eyed people, made so by films on their eyes..." (Hedrick and Riley 1974: 52). Although several

researchers (Dobyns 1983: 12-13; Nixon 1946: 53) have cited this "blindness" as evidence that smallpox had spread as far north as the American southwest, the "blindness" that is associated with benign smallpox is caused by swelling of the eyelids, making it difficult for the victim to open his/her eyes (Dixon 1962: 94-96). Had smallpox penetrated western Texas or northwest Mexico, it is more likely that it would have left facial scars or pockmarks (Dixon 1962: 91-95; Schroeder 1972: 54; Treutlein 1949: 163), neither of which were mentioned or alluded to by Cabeza de Vaca or the authors of the Joint Report.

It seems more likely that many natives who were "blind" were suffering from trachoma, a disease associated with malnutrition and poor hygiene that produces inflammation of the conjunctiva and cornea¹⁵ (Cloudsley-Thompson 1976; Freyche 1958). Interestingly, Arabs are particularly susceptible to trachoma, and as early as 1500 B.C., the Egyptians had learned to treat the disease with copper sulphate (Cloudsley-Thompson 1976: 128-129). It is conceivable that Esteban, who was Arabic, was familiar with this treatment, and used it on natives in western Texas. The application of copper salts may explain how the four Christians reportedly were able to cure many who were blind (Hedrick and Riley 1974: 52). It was after they had cured or helped some blind natives in western Texas that the four Christians were besieged in Sonora by large crowds that asked to be cured and given immunity from disease (Cabeza de Vaca 1944: 61-62; Hedrick and Riley 1974: 62). This behavior probably reflected the fact that native peoples in Sonora and other areas of northwest Mexico had learned of the devastation wrought by disease further to the south. The mysterious nature and unprecedented consequences of disease no doubt aroused great anxiety,

perhaps to the point where many natives thought they were ill or in danger of dying¹⁶.

While measles and other acute and chronic diseases may not have penetrated far beyond the Culiacan Valley in 1536, Cabeza de Vaca and his companions may, themselves, have been a source of infectious diseases. Shortly after Narvaez's makeshift armada was shipwrecked along the east coast of Texas, in 1528, many survivors and Karankawa Indians that befriended the Spaniards died from "a sickness of the stomach" (Cabeza de Vaca 1944: I, 31). Although we can not be certain of the particular disease(s) that was involved, dysentery or typhoid are logical candidates. Both intestinal disorders can be retained for months or years after an initial attack (Cloudsley-Thompson 1976), and thus, both maladies could have been spread by Cabeza de Vaca and his party as they crossed northwest Mexico. The accounts of subsequent expeditions led by Fray Marcos de Niza (1539) and Coronado (1540-41) make no mention, however, of diseases or significant disease-induced changes that might be attributed to the survivors of the Narvaez expedition (Hammond and Rey 1940). It should also be noted that there is little or no evidence that De Niza's or Coronado's expeditions were responsible for the introduction of acute and chronic infectious diseases. This finding is somewhat surprising, inasmuch as Coronado's expedition included several hundred Spaniards and over 1000 Indians from New Spain and New Galicia (Hammond and Rey 1940: 7-8). Still, the exploration chronicles do not mention or allude to members of either De Niza's or Coronado's expedition introducing disease¹⁷.

The Great Matlazahuatl of 1545-48

For several years after Coronado's expedition, New Spain and New

Galicia suffered from isolated outbreaks of disease that reached truly epidemic proportions in 1545 (Beaumont 1932: II, 141; Grijalva 1924: 213-215; Tello 1891: 509-510, 524-527). The particular disease agents that were responsible for the "great **matlazahuatl**", as it was called by the Indians, are not known. The Nahuatl term **matlazahuatl** apparently refers to a rash that was similar to, yet different from the smallpox or measles rash¹⁸ (Dobyns 1963: 499-500). The symptoms most frequently used to characterize the epidemic were intense fever and nosebleeding (e.g. Gibson 1964: 448-449; Mendieta 1945: 174; Ocaranza 1934: 84). This combination of symptoms could reflect a variety of diseases, although many researchers, following Zinsser (1934: 194-195), believe typhus was the principal malady involved in the epidemic.

Whatever the disease agent(s), for 6 months in 1545 the "great **matlazahuatl**" raged in New Spain, claiming hundreds of thousands of lives (Bancroft 1886: 529-530). Some observers believed the epidemic killed five-sixths of the Indian population of New Spain (Grijalva 1924: 214). After reaching epidemic proportions in Mesoamerica, what appears to have been typhus raged for several years in west Mexico (Bancroft 1886: 552, 553; Beaumont 1932: II, 63). Unfortunately, like many early epidemics, very little is known about the areal extent of the epidemic, particularly if it reached the Villa of San Miguel and points further to the north and east. At the time of the epidemic, there was relatively little movement of goods and people between Compostela and Culiacan. Both settlements were more or less isolated outposts of the northwestern frontier (Hammond and Rey 1928: 77; Mecham 1927: 54). It is conceivable, therefore, that typhus and other maladies failed to spread up the pacific slopes of the Sierras, into central or

northern Sinaloa.

While disease agents may not have spread northward along the **camino real** of the coast, opportunities abounded between 1545-48 for the movement of disease up the **camino real** of the interior. As we have seen, the interior road was forged during the height of the epidemic, when several hundred Spaniards and countless natives from southern Mexico flocked to the silver mines that were opened around Zacatecas (Bakewell 1971: 15). Basic principles of epidemiology suggest that some of these mine workers harbored typhus and other diseases. It may in fact be indicative of the introduction of disease that a hospital (Santa Veracruz) was constructed within a year of the founding of Zacatecas (Ocaranza 1934: 126). Elsewhere, in Michoacan and Jalisco, for instance, the epidemic of 1545-48 prompted the construction of hospitals to care for the large number of Indians who became ill (Beaumont 1932: II, 141-145; Tello 1891: 524-525).

A Period of Relative Calm, 1548-76

During the decades following the epidemic of 1545-48, southern Mexico enjoyed a period of relative calm, epidemiologically speaking (Cook and Simpson 1948: 14; Mendieta 1945: 174; Ocaranza 1934: 85). By 1550, the aboriginal population of Mesoamerica had been reduced by at least half (Borah and Cook 1963; Gibson 1964: 138). Of those who survived, many had acquired an active immunity to smallpox, measles, and other diseases. Repeated exposure to various maladies must also have raised the frequency of heritable resistance factors in the native population as a whole (Cockburn 1963; Motulsky 1971: 227). Accordingly, during the third quarter of the sixteenth century, New Spain and New Galicia experienced what were mostly minor epidemics¹⁹. These disease episodes were not without dire

consequences, particularly when the diseases were uncommon. In 1550-51, for instance, some areas of New Spain and New Galicia were devastated by an epidemic of what apparently was mumps ("paperas", "hinchazones de garganta") (Beaumont 1932: III, 253; Gibson 1964: 449; Tello 1891: 54). More characteristic of the period, however, were epidemics like that in 1562-64. At this time, measles and several other established diseases flared up in New Spain and New Galicia, doing relatively little damage as compared with earlier disease episodes²⁰ (Bancroft 1886: 553, f. 41; Grijalva 1924: 216; Ocaranza 1934: 85).

Although there were few major epidemics between 1548-1575, there were a number of developments during this period that set the stage for a new series of highly destructive epidemics during the closing decade of the sixteenth, and throughout the seventeenth century. Perhaps the most significant development was the founding of Spanish mining and related settlements in Zacatecas, Durango, and southern Chihuahua. As we have seen, to meet the needs of the mining community, an extensive transportation network was developed that linked Spanish, Indian, and mission communities within and without southern Mexico and northern New Spain. This transportation network allowed disease agents that were endemic in the south to spread northward into and among Indian populations that had little or no prior exposure to maladies like smallpox. Viruses and other microorganisms undergo significant genetic changes when exposed to a new host environment — changes that often result in new and more virulent strains of microorganisms (c.f. Aschmann 1959: 188; Beveridge 1978: 50-51; Motulsky 1971: 247). Such changes may have occurred during the third quarter of the sixteenth century, resulting in new forms of smallpox, measles, and other

diseases²¹. Accordingly, in 1576, the decades of relative calm that New Spain had previously enjoyed came to an abrupt end.

The Typhus Epidemic of 1576-81

During the spring of 1576, and for 4 or 5 years thereafter, southern Mexico was ravaged by a great "matlazahuatl" or "cocolistli". The epidemic reportedly was the same as that in 1544 and 1555 (Bancroft 1886: 658, f. 43), characterized by a dynamic fever and nose bleeding (Gibson 1964: 449; Grijalva 1924: 216; Mendieta 1945: 174, Ocaranza 1934: 85). Other symptoms mentioned were intense headache and violent stomach pains (Bancroft 1883: 657-658; Florencia 1955: 257). These symptoms, when taken as a whole, are highly suggestive of typhus, typhoid, and dysentery. Historically, all three diseases have worked in concert, devastating populations living in poverty and lacking proper hygiene (Cloudsley-Thompson 1976; Zinsser 1934: 256). This fact seems significant, inasmuch as it was primarily Indians and to a lesser extent blacks who suffered in 1576-81²² (Aguirre Beltran 1940: 194; Cooper 1965: 49; Gibson 1964: 449). The Jesuit historian, Florencia (1955: 257), reported that the census books from New Spain showed that more than 2 million Indians died during the first year of the epidemic. Another Jesuit, and an eyewitness, Juan Sanchez, believed the epidemic killed two-thirds of the native population of New Spain (Alegre 1956: 184-185).

Among the millions that perished were untold thousands in Nueva Galicia. The "great sickness" appeared in Jalisco and Nayarit in the spring or summer of 1577 (Mota Padilla 1924: 311; Tello 1891: 623). Although direct evidence is lacking, typhus and other maladies probably also reached epidemic proportions at this time in northern Nayarit and southern and central Sinaloa. By 1575, there was considerable movement of goods and

people along the coast road, thus facilitating the movement of typhus up the west coast (Hammond and Rey 1928: 114; Mecham 1927: 146). Disease agents also could have reached Sinaloa from Durango via the Topia road. Not long after typhus appeared in Mesoamerica, the "great **matlazahuatl** spread northward into Zacatecas, Durango, and southern Chihuahua. The "Chichimec" country to the north of the Valley of Mexico apparently was the earliest and perhaps the worst hit area along the eastern slopes of the Sierras. By 1584, infectious diseases had all but destroyed the Indian population of the Cazcan country (Powell 1952: 168). The "great **matlazahuatl**" likewise wrecked havoc in Zacatecas. The **fiscal** of Guadalajara reported that the disease killed more than 2,000 Indian mine workers in Zacatecas in 1576-77 (Bakewell 1971: 126-127). Typhus, typhoid, and dysentery apparently next spread northward into Durango and southern Chihuahua. Some disaster is implied by a petition from officials in Durango that was sent to the King in 1579. The petition requested permission to import 1000 Tlascaltec and other Indians to increase the supply of Indian mine workers in Nueva Vizcaya (Mecham 1927: 231). Requests of this nature or for new **encomiendas** often were correlated with disease-induced reductions in population (e.g. Bakewell 1971: 200; Friede 1967: 339; Griffen 1979: 100).

Pre-Jesuit Epidemics and the Northern Frontier, 1581-91

The epidemic of 1575-81 was followed in 1587-88 by a **cocoliztli** that killed many Indians in southern Mexico and Nueva Galicia (Bancroft 1886: 754-55; Gibson 1964: 449; Mendieta 1945: 174; Tello 1891: 692, 694). Again in 1590, and for several years thereafter, New Spain and New Galicia were beset with smallpox, measles, and other unidentified diseases (Alegre 1956: 367, 371; Gibson 1964: 449; Mota Padilla 1924: 316; Shiels 1934: 142; Simpson

1938: 51; Tello 1891: 699). Like many pre-Jesuit disease episodes, data are lacking that would clarify the impact that these latest epidemics had on native peoples in northwestern New Spain. It is known, however, that many Zacateco, Tepehuan, Irritila, and Acaxee were forced or enticed into working on Spanish farms and ranches and in Spanish mines and households during the closing decades of the 1500's²³ (e.g. Alegre 1956: 422-424; DHM 1601: 67-68; Perez de Ribas 1944: III, 250-253). By 1575, Franciscan missionaries also were working at Topia, Nombre de Dios, Santa Barbara, and Parras (Arlegui 1851; Lopez-Velarde 1964; Meham 1927). There were sufficient contacts with Spaniards, therefore, to insure native exposure to smallpox, measles, typhus, and other maladies that were carried north along the **camino real** of the interior. This inference is supported by Jesuit reports of a variety of behaviors and beliefs regarding disease that were current among the Zacateco, Irritila, and various **Serrano** groups at the time of Jesuit contact.

During the 1590's the Jesuits, for instance, encountered many Acaxee, Tepehuan, and Laguneros, that abandoned their sick, and in some instances, buried them alive, for fear of becoming ill and dying (DHM 1596: 30; DHM 1598: 57). The priests also were shocked and dismayed by the widespread practice of child sacrifice to ward off disease or to insure the recovery of an adult who became ill (DHM 1598: 51; Perez de Ribas 1944: III, 148-149). The annual reports from the 1590's also contain numerous asides regarding Acaxee and Tepehuan idols that represented dieties to which offerings were made to ward off disease and death²⁴ (Alegre 1958: 83, 93; DHM 1601: 65, 71-74; Perez de Ribas 1944: III, 13-22). One source even notes that the Acaxee had an idol and deity of "bloody stools" (DHM 1601: 65), a prominent symptom of maladies like dysentery. There were likewise many Acaxee,

Tepehuan, and Laguneros that were persuaded, perhaps from experience with Franciscan missionaries, that baptism brought sickness and death (Alegre 1958: 503; DHM 1598: 48). Interestingly, Father Juan Augustin de Espinosa was told that "two very horrible negroes" had travelled through the Laguna region telling the natives that baptism brought the "great sickness" (el cocolistli) and death²⁵. Espinosa further noted that the Zacateco talked of how "the devil appeared like a dreadful and terrible negro, drenched in blood that flowed from his mouth and ears, with fire shooting from his eyes". Reportedly, the negro terrorized the people, threatening them with death, and commanding them to perform rituals involving child sacrifice (DHM 1598: 48). A letter written in 1604 by Father Francisco de Arista from Parras indicates this fear of "the devil" may have had some basis in fact²⁶. In his letter, Arista related how the priests working among the Laguneros had happened upon a cave where there they found a mass burial that also was something of a shrine. The priests were told by the Laguneros that the mass grave contained the bodies of those who were killed by "the devil", and that the devil appeared at times in the form of a serpent, or in human form, although fierce and horrible looking. On one occasion the devil came to the natives in the habit and clerics' dress that was worn by the Jesuits (Perez de Ribas 1944: III, 263-264).

Native fears of baptism or associating with the sick, the use of idols specifically charged with controlling disease, and mass graves, all may have been consequences of epidemics that affected the Laguneros, Tepehuan, and Acaxee prior to Jesuit contact. Similarly, stories about blacks that wandered about the Laguna region with blood flowing from their ears and mouths, punishing people with disease, may refer to slaves or mulatto mine workers²⁷

who fled Mapimi and Parras during the typhus epidemic of 1575-81). Interestingly, bleeding (**pujamiento de sangre**) was one of the 2 symptoms most frequently used to describe the epidemic (Gibson 1964: 449; Mendieta 1945: 174). Lagunero stories about the devil appearing in a cleric's habit and punishing the natives with disease might also refer to epidemics of typhus that followed contact with Franciscan missionaries. The latter established a short-lived mission in the Valley of Parras in 1578, at the time of the epidemic of 1575-81 (Dunne 1944: 203, f. 20).

During the period from 1575-1591, northern Nayarit and southern Sinaloa also may have been affected by typhus and other maladies (Tello 1891: 623, 692-94). However, very little is known about these epidemics, although some historians believe that they contributed to a 90% reduction in the aboriginal population of Nueva Galicia²⁸ (Bancroft 1886: 552-553). Of particular interest here is whether smallpox, typhus, malaria and other diseases had an impact on the Cahita and neighboring populations in northern Sinaloa. Because of the limited Spanish presence in the north²⁹, it is conceivable that Old World diseases did not have a significant impact on native people living to the north and east of the Villa of San Felipe. This inference is supported by several Jesuit commentaries on the size and complexity of native populations in northern Sinaloa³⁰ (AGN 1593, op. cit., Shiels 1934: 109-113; Shiels 1934: 132-135). The first epidemic documented by the Jesuits in Sinaloa provides additional evidence that diseases like smallpox did not have a profound or lasting impact on northern Sinaloa prior to 1591. The epidemic, which is examined below, occurred in 1593, and apparently affected all age groups equally. This is precisely what you would expect of a "virgin population". Also, in one of two letters in the anua of 1593 (AGN

1593; op. cit. Dunne 1940: 32, Alegre 1956: 393), Father Velasco noted that the Indians complained that it was only after the Jesuits began living among them that they suffered from disease, and that they previously enjoyed good health.

The Epidemic of 1593 in Sinaloa

The smallpox epidemic of 1593 in northern Sinaloa occurred two years after the Jesuits realized their dream of converting the heathen Indians of the New World³¹. In July, 1591, Fathers Gonzalo de Tapia and Martin Perez established the first permanent mission in the frontier settlement of San Felipe, along the Rio Sinaloa. The two Jesuits promptly distinguished themselves from the handful of Spanish *encomenderos* at the Villa by learning Cahita and by not appropriating Indian food and labor. Almost immediately, native interest in the black robes was aroused, and 13 crude churches³² were built in as many villages along the Mocorito, Sinaloa, and Ocoroni Rivers. Two priests, however, could not attend to the doctrinal needs of so many missions. Accordingly, in the spring of 1592, Jesuit Superiors sent Tapia and Perez two helpers³³. The arrival of Santiago and Velasco allowed the Jesuits to devote more time to preparing their adult Cahita charges for baptism. It also was possible to begin a permanent mission near the coast, among the Guasave. The pace of mission progress was indeed fast and by July, 1593 over 6000 natives had been baptized and there were some 20 native communities under Jesuit tutelage³⁴ (AGN 1594: 33).

It was during the late summer or early fall of 1593 that the Jesuit missions in Sinaloa were ravaged by smallpox and measles. The origins of the epidemic may be correlated with a visit Father Tapia made to Mexico City in the spring of 1593. Tapia, who was local superior, travelled to the

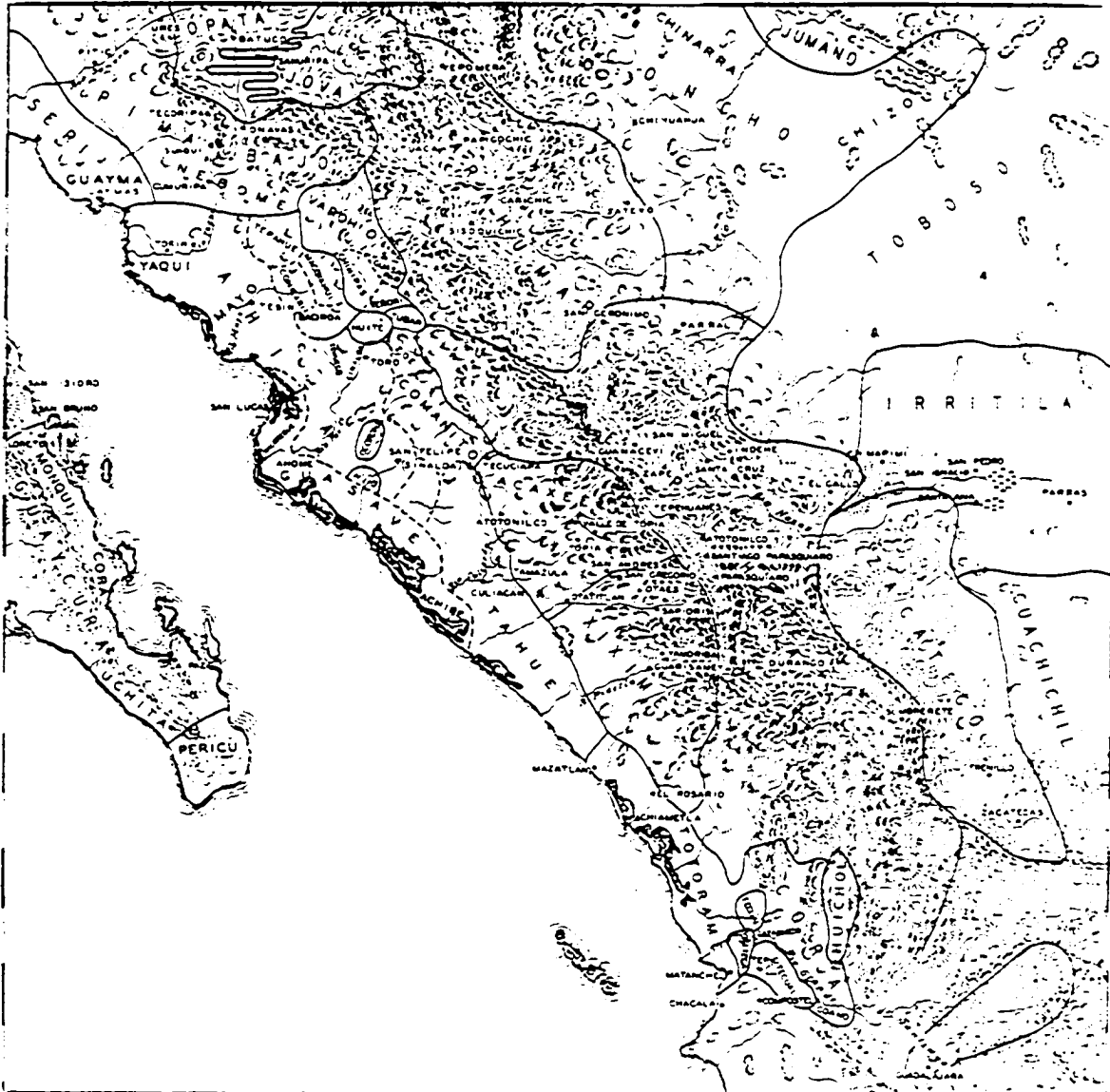


Fig. 13. JESUIT MISSIONS OF NORTHWESTERN MEXICO (after Bannon 1939)

capital to petition the Viceroy and the Jesuit Provincial for more priests for Sinaloa³⁵. To demonstrate the worthiness of his request, Tapia brought a small group of young converts with him. On the way back to Sinaloa, all but one of Tapia's neophytes died at Valladolid (Morelia), during an outbreak of smallpox (Shiels 1934: 140). After the tragedy, Tapia continued on to Sinaloa with a new recruit, Brother Francisco de Castro, apparently arriving at San Felipe toward the end of April. Several months later, apparently in August or September³⁶, a pack-train reached Sinaloa that brought supplies and church ornaments as well as the one Indian boy who survived the smallpox outbreak in Valladolid. About this same time, smallpox and measles appeared at San Felipe, suggesting that both maladies accompanied the pack-train from Valladolid.

Whatever their origins, smallpox and measles spread rapidly to many mission settlements as well as to gentile pueblos 40 miles from the Villa of San Felipe³⁷. Reportedly, almost everyone became ill, leaving many communities unable to care for the sick and dead. The Jesuits responded to the disaster by turning their residence at Cuibiri into a hospital. Those who were able to reach Cuibiri were fed and cared for by Brother Castro, who also found it necessary to assume some of the regular duties of a priest, baptizing the sick and administering the last rites. Fathers Tapia, Perez, Velasco, and Santiago meanwhile made the rounds of the missions, working day and night, attending to both the corporal and spiritual needs of their neophytes. It was impossible, however, for the Jesuits to attend to all the sick and dying, particularly as many natives fled their villages in fear and horror. Reportedly, many who fled were later found laying under trees in the *monte* or scrublands of the coastal plain. So great were the losses that

many bodies were left where they lay for want of someone to bury the dead³⁸.

While the epidemic of 1593 was by many accounts, widespread (e.g. Shiels 1934: 142), the precise areal extent of the epidemic is unclear. The accounts of the epidemic mention great suffering along the lower and middle Rio Sinaloa and along the Rio Ocoroni. Indirect evidence suggests that the epidemic also spread up into the foothills above the Rio Sinaloa, where the Jesuits had a mission among the Bacuburito³⁹. Because of the great suffering in and around San Felipe, the Jesuits were unable to visit the foothills during the winter of 1593. Just after the epidemic subsided along the coast, in 1594, Father Martin Perez finally visited the Bacuburito and reportedly was besieged with requests to celebrate a mass for the dead ("**la fiesta de los difuntos**"). Large numbers of mourners gathered for the 2 day feast, bringing tamales, cotton, honey, and other offerings that were redistributed in honor of the many that apparently died during the previous six months, presumably from smallpox and measles (AGN 1594: 34-36).

During the epidemic of 1593, Father Velasco, who resided along the Mocerito, left his mission to baptize and care for hundreds of Guasave who perished along the lower Rio Sinaloa (AGN 1594: 36; Perez de Ribas 1944: I, 173). Velasco's absence from his **partido** would seem to suggest that smallpox and measles did not spread southward from the Rio Sinaloa to the small Tahue-speaking population of the Rio Mocerito⁴⁰. The Jesuit materials also make no mention of the epidemic having spread to the Rio Culiacan. Since the inhabitants of the Rio Culiacan frequently visited the Jesuits at San Felipe (AGN 1594: 34), the Tahue probably were exposed to **variola** and **rubeola** virus, but did not contract either disease. The Tahue of the Rio

Culiacan and the Rio Mocorito had been in contact with Spaniards at San Miguel for many years⁴¹, no doubt acquiring some immunity to smallpox and measles. As we have seen, the province of Culiacan was devastated by measles as early as 1535.

While an acquired immunity to disease may help explain the restricted spread of smallpox and measles among groups like the Tahue, it is difficult to explain why the Suaqui and other Cahita-speakers along the Rio Fuerte apparently were spared during the epidemic of 1593. Shortly after the Jesuits arrived in Sinaloa, Father Tapia visited the Suaqui, principally to explain to the natives the Jesuits' good intentions. Late in 1593, around the time the epidemic was subsiding along the Rio Sinaloa (Alegre 1956: 394), Tapia again visited the Suaqui and their Cinaloa neighbors, further upstream⁴². Although Tapia found that the Suaqui and Cinaloa had been frightened by the epidemic, there is no evidence that the Suaqui or Cinaloa themselves suffered from smallpox or measles. This inference is supported by the fact that Tapia did not baptize any adults who were in danger of dying; during his *entrada*, Tapia baptized only children⁴³ (Perez de Ribas 1944: I, 17-175).

The Epidemic of 1594 in Durango

In speculating about the origins of the epidemic in Sinaloa, the possibility was suggested that smallpox and measles were carried north from Valladolid, where, as we have seen, smallpox appeared in the spring of 1593. Valladolid was actually one of many areas in southern Mexico that experienced epidemics of smallpox, measles and other maladies between 1590-93 (Alegre 1956: 367, 371; Gibson 1964: 449; Mota Padilla 1924: 316; Simpson 1938: 51; Tello 1891: 699). Because disease was widespread at this time in Mesoamerica, there undoubtedly were numerous occasions when

variola and other microorganisms accompanied muleteers, miners, and missionaries that travelled northward along the coast and interior roads. It is not surprising, therefore, that less than a year after smallpox and measles appeared in Sinaloa, the Jesuits reported an outbreak of smallpox in the Laguna region of northern Durango.

At the time of the epidemic, the Jesuits were in the process of establishing a permanent residence and college in Durango — a headquarters for mission operations along the eastern slopes of the Sierras and in the mountains around Topia. While the residence was being prepared, Fathers Juan Augustin de Espinosa and Geronimo Ramirez initiated contact with the Zacateco and Irritila of what became the Mission of Laguna and Parras. During the summer of 1594, the two priests travelled to Cuencame, the former site of a Franciscan mission and a village with some 30 Zacateco families. While Ramirez preached to the inhabitants of Cuencame, many of whom apparently had dealings with Spanish miners and ranchers⁴⁴, Espinosa continued north to a Zacateco village at the base of the Sierra Gordo. There, Espinosa was visited by numerous Irritila caciques from the Laguna region and 3 from the Rio Nazas. The caciques begged Espinosa to visit their pueblos, where many of their children reportedly were dying of smallpox. Espinosa acceded to their request, and in one pueblo baptized 17 or 18 children who were sick and in danger of dying (Alegre 1956: 423-424; Perez de Ribas 1944: III, 251-253). Significantly, Espinosa made no mention of adults or adolescents who were ill⁴⁵. The adults and adolescents probably had an active immunity to smallpox that was acquired during one or more pre-Jesuit epidemics in Durango. As we have seen, these epidemics also produced native fears and beliefs regarding the devil and disease.

The Epidemic of 1601-02 in Sinaloa

The outbreaks of smallpox and measles that occurred along the eastern and western slopes of the Sierras in 1593-94 were the first of many disease episodes documented by the Jesuits. During the decades that followed, major epidemics occurred at regular 5-8 year intervals. This pattern reflected, in part, the coming of age of a new generation of susceptibles, specifically children that were born after each epidemic who, after reaching the age of 3, were no longer breast fed⁴⁶, and thus, were deprived of maternal antibodies that provided some resistance to disease. A letter of Father Pedro de Velasco from the year 1601 provides some support for this thesis. That year, and during the following year, northern Sinaloa was ravaged by measles and several other diseases. According to Velasco, the epidemic initially had little impact on infants ("**ninos parbulos**"). Those who suffered most were the elderly, "and more so women, and young people who had not yet reached juvenile age" (AGN 1601: 109). This last group presumably included many children who had been born since the epidemic of 1593.

Like most disease episodes, the epidemic of 1601-02 probably originated with microorganisms that were introduced from southern Mexico. Between 1595-97, measles, typhus, and mumps reached epidemic proportions in New Spain (Gibson 1964: 449; Grijalva 1924: 216; Mendieta 1945: 174-175; Ocaranza 1934: 86). In 1596, Nueva Galicia also suffered from an epidemic that was characterized by a swelling of the throat ("**hincharones**") (Tello 1891: 714), a major symptom of measles. In 1601-02, Nueva Galicia again was affected by a "great sickness" (Tello 1891: 730-731, 734), as was Sinaloa.

According to Father Pedro de Velasco, the **cocolistli** appeared suddenly in Sinaloa, afflicting "some in the same manner as tonsillitis or mumps;

others lost their ability to speak or reason and became senseless and crazy". The epidemic went on for 3 or 4 months, and just when it appeared that it would end, it reappeared, spreading in less than a day and a half, and at times, in one day, from pueblo to pueblo, infecting those who had not previously suffered. Many reportedly died in 2 days and others in less than 14 hours (AGN 1601: 109-110).

Velasco's comments regarding the epidemic's high incidence, the prevalence of upper respiratory problems, the suddenness and rapid spread of disease, and also his mention of individuals that developed a rash (AGN 1601: 114), all are highly suggestive of measles (Berkow et al. 1982; May 1958). In 1601, there were several thousand Guasave, Nio, and Ocoroni converts that recently had been baptized. Many of these converts apparently escaped the epidemic of 1593, and thus, lacked an active immunity to measles. Predictably, large numbers of recent converts suffered and died during the epidemic of 1601⁴⁷. Velasco, for instance, reported that 58 of 128 Ocoroni adults that were baptized in 1601 died (AGN 1601: 110).

After apparently subsiding late in the summer or early fall, the epidemic of 1601 continued during the spring of the following year. The ~~anua~~ of 1602 indicates that "sore throat" and six or seven other diseases, including smallpox, measles, excirpelas⁴⁸ and typhus became widespread (AGN 1602: 126). Almost everyone reportedly came down with something. As was the case the previous year, the epidemic wrecked havoc among the Jesuits' most recent converts. The ~~anua~~ of 1602 notes that many of the 243 infants and 274 adults that were baptized among the Guasave subsequently died. In the 3 older ~~partidos~~ or mission districts of the Rio Mocerito, San Felipe, and Rio Ocoroni, another 278 infants were baptized in 1602. Many of these

infants also perished. While 54 adults also were baptized in the 3 older *partidos*, none were reported to have died (AGN 1602: 129-130), apparently because they had weathered one or more earlier bouts with Old World diseases.

In the *anua* of 1602 there are several accounts of Suaqui Indians who were ill that came south to be baptized (AGN 1602: 128). These accounts indicate the epidemic spread to the middle Rio Fuerte. Presumably, the Tehueco and Cinaloa, who lived upstream from the Suaqui, and the Ahome (who lived downstream), also suffered during the epidemic. Each of these groups, like the Suaqui, had contact with the Jesuits and with fellow Cahita or Guasave speakers under mission tutelage⁴⁹.

The *anua* of 1602 also contains a letter by an unnamed priest that indicates that the epidemic of 1601-02 spread for a considerable distance to the south. In his letter, the priest noted that he spent 15 days in the Culiacan Valley, visiting some 20 pueblos where many natives died from a furious *cocoliztli*⁵⁰ (AGN 1602: 136). The same priest reportedly spent another week or so visiting the Tetebatas, a sub-group of the Acaxee who lived in the foothills above the Rio Culiacan. From the priest's comments, particularly his observation that the natives were healthy in body, but not in spirit⁵¹, it appears that the Tetebatas were spared by the epidemic of 1601-02.

The apparent failure of measles and other diseases to spread up into the foothills is not altogether surprising. In September of 1601 — several months after Sinaloa was stricken with disease — the foothills and mountains around Topia and San Andres were rocked by the Acaxee revolt⁵². Several thousand Acaxee went on a rampage, destroying Spanish mines and related

settlements at Topia, San Andres, San Hipolito, San Gregorio, and Las Virginies⁵³. The rebels also forced Father Hernando de Santaren and several other Jesuits to flee the Valley of Topia and the mountains around San Andres. Since 1598, the Jesuits had been busy in both areas, founding missions and baptizing several thousand Acaxee⁵⁴. Significantly, once the Acaxee revolt began and the Jesuits and other Spaniards fled the Sierras, all trade and communication with Sinaloa ceased (Dunne 1944: 57, 59). This situation obtained throughout the duration of the revolt — until the fall of 1603 — and may very well have blocked the spread of disease into the mountains to the east.

Although the Acaxee uprising may have stopped measles and other maladies from spreading eastward, there was nothing to impede the movement of disease up the eastern slopes of the Sierras into northern Durango and southern Chihuahua. This process was exemplified in 1594, when Father Espinosa reported an outbreak of smallpox in the Laguna region. In 1598, Espinosa again visited the Laguna region, and learned from an old man that measles had wiped out at least one Zacateco village or *rancheria* the year before, in 1597 (DHM 1598: 48-49). That same year, Father Geronimo Ramirez left Durango and established the first Tepehuan missions at Santa Catalina, Santiago Papasquiario, and Guanacevi. It is perhaps indicative of the spread of measles among the Tepehuan that many of Ramirez's converts fled their homes in the mountains near Saucedo because of a great hunger (DHM 1597: 37). As Father Pedro Mendez noted (AGN 1594: 36), food shortages and famine characteristically followed epidemics, apparently because of the sudden loss of people to maintain crops or to conduct a complete and timely harvest.

With respect to the years 1601-02, then, it would not be surprising to learn that measles or other diseases that reached epidemic proportions in the south subsequently made their way north along the interior road, eventually infecting the Tepehuan, Zacateco, and Irritila. Actually, we know from a letter of Father Nicolas de Arnaya (DHM 1601: 69-70) that a year after Father Espinosa founded the mission of Parras, in 1600, the Laguneros again suffered from an apparent outbreak of disease⁵⁵. However, immediately after an undisclosed number of converts died, all but 4 or 6 of the close to 1500 natives at Parras abandoned their mission. The natives' decision to flee may have reduced the chances of the outbreak having reached epidemic proportions. As we shall see, in 1607-08 both the Laguneros and Tepehuan were devastated by measles and several other diseases. The extent to which both peoples suffered supports the idea that they were spared the ravages of disease in 1601-02.

The Epidemic of 1606-07

The years following the epidemic of 1601-02 were a difficult time for the Jesuits in Sinaloa⁵⁶. As often was the case, the Jesuits had to convince many of their neophytes to return to their missions, many of which were abandoned in the wake of the epidemic. This task of re-settlement was made difficult by native doubts regarding the efficacy of Christianity — doubts that were intensified by the *hechiceros* who pointed to the missionaries as the source of sickness and death. The priests also had to cope with crop failures and hunger that were correlated with epidemics. Drought and hunger preceded the epidemic of 1601, for example, undoubtedly lowering native resistance to disease. Hunger followed in 1603, and in 1604, heavy rains destroyed native and mission crops on both the eastern and

western slopes of the Sierras (AGN 1604; Perez de Ribas 1944: II, 25; Dunne 1944: 73). Food shortages during the following years once again lowered native resistance to disease, setting the stage for the third major epidemic documented by the Jesuits.

The epidemic of 1606-07 was truly widespread, affecting mission and gentile communities in the heart of the Sierras and on both the eastern and pacific slopes of the Great Divide. Prior to their appearance in the north (between 1604-07), measles and smallpox, otherwise termed *cocolistli*, reached epidemic levels in Guatemala and southern Mexico (Alegre 1958: 145; Gibson 164: 448). In 1606-07, priests and noviciates at the Jesuit College in Tepotzotlan, some 30 miles north of Mexico City, were called upon to care for many Otomi Indians who were stricken by disease (Alegre 1958: 144). Interestingly, the Jesuit College at Tepotzotlan may have been the point of departure for several young Jesuits that were sent to Sinaloa late in 1606 — about the time that measles and smallpox appeared in the north (Alegre 1958: 162-163; Perez de Ribas 1896: I, 214; 1944: I, 342).

Much of what we know about the epidemic of 1606-07 in Sinaloa is derived from Perez de Ribas *Historia* (1944, I, 311-314, 343-347). At the time of the epidemic, Perez de Ribas was himself working among the Ahome and Suaqui along the lower and middle Rio Fuerte. As we have seen, the Suaqui and Ahome apparently were affected by the epidemic of 1601-02. Perhaps because of their recent exposure to smallpox and measles, both groups did not suffer greatly in 1606-07⁵⁷. The impression one gets from Perez de Ribas and other sources (Alegre 1958) is that the mission population of the Rio Sinaloa and the Rio Mocorito also suffered little during the epidemic. This finding is consistent with the fact that the Cahita and Tahue of the

Sinaloa and Mocorito Rivers had been exposed to measles and smallpox on at least several occasions prior to 1606-07.

Predictably, the epidemic of 1606-07 had its greatest impact on the Jesuit's newest converts, the Tehueco and Cinaloa of the upper Rio Fuerte. In 1605, Fathers Mendez and Villalta began regular visits to the Tehueco and Cinaloa, baptizing the children and explaining Christian doctrine to the adults. These visits continued until late the following year, 1606, when Mendez and Villalta received a license from the Viceroy enabling the priests to reside permanently with their neophytes. No sooner did the priests take up their new residences when smallpox and measles struck⁵⁸. In one of the 3 Cinaloa settlements under Villalta's care, the priest had to care for 300 natives that became ill in one day. In other mission *partidos* the Jesuits also had to cope with high case frequencies. More disturbing to the priests were the large number of natives who perished. Reportedly, several thousand mission converts died during the epidemic (Perez de Ribas 1944: I, 346).

Although direct evidence is lacking, the chances seem excellent that the Mayo and Yaqui also were affected by the epidemic of 1606-07. By 1606, each group was in contact with the Jesuits and with other Cahita speakers already under mission tutelage⁵⁹. At the time of the epidemic, the Baciroa, Conicari, and other native peoples in the foothills above the Tehueco and Cinaloa also were in contact with both the missionaries and with relatives living in mission communities⁶⁰.

Numerous letters that were written by Jesuits working among the Acaxee support the idea that smallpox and other diseases penetrated the foothills and mountains above the coastal plain of Sinaloa in 1606-07. It will be recalled that in September of 1601, the Acaxee went on a rampage,

destroying all forms of Spanish life in the Sierras about Topia and San Andres. After the last Sobaibo Acaxee surrendered in December, 1603, Father Hernando de Santaren convinced many Acaxee to return to their old mission settlements. By 1606, Santaren and a handful of fellow Jesuits organized 5 mission districts or **partidos** with 12,000 Acaxee neophytes (Dunne 1944: 56-64; Perez de Ribas 1944: III, 34-41; Sauer 1935: 22). Significantly, reports from several of the Acaxee **partidos** mention or allude to thousands of Acaxee dying from smallpox in 1606-07⁶¹. Many Xixime in the mission of San Gregorio also perished, as evidenced by reports that over 800 children and another 800 adults died of smallpox (Perez de Ribas 1944: III, 84).

Around the same time Sinaloa, southern Sonora, and northwestern Durango were hit with smallpox and measles, smallpox appeared along the eastern slopes of the Sierras, among the Tepehuan. At the time, 1607, the Tepehuan mission had grown considerably, and included permanent missions at Santiago Papasquiario, Santa Catalina, Guanacevi, Inde, and Zape. In October of 1607, Father Juan Fonte also founded the mission of Santa Cruz in the district of Ocotlan, along the Tepehuan-Tarahumar border. It was apparently during the spring of 1607 when smallpox appeared at Santiago Papasquiario, Santa Catalina, Inde, and Zape. Interestingly, while many Tepehuan converts contracted smallpox, it was primarily Tepehuan gentiles in communities near the Tepehuan missions who suffered and died (Alegre 1958: 154). Although Alegre states that the Christian Tepehuan fared better because they were cared for by their resident priests, the Tepehuan in mission settlements also had more immunity to disease, some of which was acquired during an epidemic of smallpox in 1604⁶² (Alegre 1958: 105-106). It is not surprising, therefore, that Tepehuan gentiles suffered most in 1607, given their lack of

an acquired immunity to smallpox.

The extent to which smallpox affected mission and non-mission communities on the eastern slopes of the Sierras is reflected in a letter describing the first Jesuit **entrada** into the lands of the Tarahumara (Perez de Ribas 1944: III, 159-161). The **entrada** was undertaken in November 1607⁶³, shortly after a group of Tarahumara caciques visited Father Juan Fonte's new Tepehuan mission of Santa Cruz, requesting priests and baptism. Fonte reported that he travelled 18 leagues beyond the Valley of San Pablo, preaching in various Tarahumara settlements where he also baptized some children who were sick and dying, including one child who was quite ill with smallpox (Perez de Ribas 1944: III, 160). Importantly, nowhere in his letter does Fonte indicate or suggest that the parents of the child or other adults and adolescents contracted smallpox. The Tarahumara, it appears, had suffered from smallpox previously, perhaps most recently in 1604.

The Tarahumara of the Rio Balleza probably acquired smallpox from their Tepehuan neighbors to the south or through contact with Spaniards and Indians from the Santa Barbara. During the closing decades of the 1500's, the Tarahumara, Concho, Tepehuan, and other native peoples in southern Chihuahua traded with and were employed or enslaved by Spanish miners, ranchers, and merchants of the Santa Barbara-San Bartolome district (Griffen 1979: Miranda 1871). This contact undoubtedly facilitated the spread of diseases that were carried north to Santa Barbara and other stops along the **camino real** of the interior. Although it is unknown whether the Santa Barbara region suffered in 1607 from smallpox, we know that the Laguna region to the southeast of Santa Barbara was devastated in 1607 by smallpox. Several accounts of the epidemic (Dunne 1944: 110-115; DHM

1607; 1608; Perez de Ribas 1944: III, 273-285) indicate that smallpox raged for "many months" in the Laguna region, all but destroying many mission and gentile settlements. Indeed, in some **rancherías** where there were 100 or more inhabitants, only 1 or 2 survived the epidemic (Perez de Ribas 1944: III, 281). In the **anua** of 1607 it was noted that some natives died along the roads and in the open country outside what apparently was Mapimi, where some Laguneros worked for Spaniards (DHM 1607: 85-86). The greatest number of deaths occurred in the numerous missions of the Laguna de San Pedro⁶⁴. Indians fleeing their missions also carried the epidemic up into the hill country near Parras. Among those who fled were 50 natives from the Sierra de Quavila. These **Serranos** were part of a group of 350 that left their homes in the mountains and settled at Parras late in 1606 or early in 1607. According to Perez de Ribas (1944: III, 280), "the better part of 300" died from smallpox, prompting the remaining 50 to flee back to the sierras. Several priests reportedly followed the natives, hoping to convince the survivors that there was no necessary correlation between mission life and death from disease. The priests successfully advanced several arguments, one of which was to remind the natives "that they had suffered from epidemics in their gentility, before Priests and Christian doctrine had entered their lands" (Perez de Ribas 1944: III, 280). Here we have additional evidence that Old World diseases out-distanced the mission frontier in northern New Spain.

The epidemic of 1612-15

The great suffering and loss of life caused by the epidemic of 1606-07 once again heightened native concerns regarding acceptance of Christian rituals and beliefs⁶⁵. Doubts were particularly common among the Jesuits' newest converts, like those in the missions of San Andres and San Gregorio.

After the northern Xixime were devastated by smallpox in 1607, an apostate Xixime began preaching that the Jesuits were sorcerers, and that the church was the priests' shrine and repository of the dreaded *cocolistli* (Perez de Ribas 1944: III, 84-85). Although the Jesuits apparently were able for a while, at least, to dissuade many of such thoughts, in 1610, several hundred Xixime staged a short-lived revolt (AGN 1610; Dunne 1944: 97-108; Perez de Ribas 1944: III, 86-95). Significantly, Perez de Ribas' (1944: III, 95) indicated that the revolt was coincident with an outbreak of smallpox in an Acaxee village near the Acaxee-Xixime border⁶⁶. Although it is difficult to demonstrate, it is not unlikely that the Xixime learned of this disease episode, and fearing for their own lives, decided to rid themselves of the Jesuits and other Spaniards who were thought to be the source of disease.

A year or so after the Xixime revolt, in 1612, another of the Jesuits' more recent converts, the Tehueco of the Rio Sinaloa, rebelled against mission life. Like the Xixime, many Tehueco had come to believe that Christianity was an affront to aboriginal religious beliefs⁶⁷. Significantly, there also is evidence that at the time of the Tehueco revolt⁶⁸ one of the two Cinaloa missions upstream from the Tehueco was hit with smallpox (Perez de Ribas 1944 : I, 350). Since most Cinaloa adults had weathered earlier bouts of smallpox, it was primarily children that contracted the disease. Of course, the fact that only children suffered was no consolation to the Cinaloa. Presumably the Tehueco as well as the Zoe, Huite, Chinipa and other groups in the mountains above the Cinaloa also became concerned about losing many children to smallpox. It may even have been the case that smallpox infected some of these *serrano* "tribes" that were beyond the mission frontier.

In 1612, the Tehueco, Xixime, and other native groups were given greater cause for concern. That year, Sinaloa experienced an epidemic of typhus ("**el tabardillo**") (AGN 1612: 163) that may have originated with **rickettsia** that were introduced from Jalisco⁶⁹. The epidemic continued the following year, exacting its heaviest toll among children (AGN 1613: 168). From Sinaloa, typhus and other maladies apparently spread up into the mountains to the east. Several sources indicate that the Acaxee and Xixime missions of Topia and San Andres suffered in 1613 from **cocoliztli**) and "bloody stools" (Alegre 1958: 244-45; Perez de Ribas 1944: III, 66-67, 106-108; Dunne 1944: 111). The term **cocoliztli** probably was used here as a reference to typhus, while bloody stools may be equated with typhoid and dysentery⁷⁰. Judging from Perez de Ribas' (1944: III, 107) comments, the Xixime were particularly hard hit by the epidemic. Although Decorme (1941: II, 33-34) stated that the Laguneros also were devastated by smallpox and **cocoliztli** in 1612-13, he appears to have confused the epidemic of 1606-07 with that of 1612-13. For reasons that are not altogether clear, typhus did not reach epidemic proportions among the Tepehuan, Tarahumara, or Laguneros⁷¹.

During the epidemic of 1612-13, typhus and other infectious diseases spread far beyond the mission frontier in southern Sonora. Some insidious malady like typhus seems to have been afflicting the Mayo when Father Pedro Mendez began working among them in February, 1614. At the time of Mendez's **entrada**, the Mayo were suffering from a famine and were scattered about the coastal plain, collecting wild resources. To alleviate hunger and facilitate the establishment of mission communities, Mendez obtained a large supply of food from the Nebomes with the help of Captain Hurdaide and 30 soldiers⁷². The food was distributed in 6 mission communities where Mendez

baptized several thousand Mayo children and adults. Significantly, a good number of those who were baptized apparently were sick and in danger of dying. Accordingly, in a letter to his Superior, Mendez reported that he baptized 500 infants and adults who died during his first 15 days among the Mayo⁷³. Later that same year, in December, Mendez again wrote to his superior, recounting several "edifying cases" of natives who suffered from various unspecified maladies and who died or regained their health after being baptized. Mendez further commented that "...it is a thing of great consolation that many times I have made the rounds of the pueblos, baptizing the sick, and on my return I discovered that all, or almost all of them had been taken by our Lord..." (AGN 1614a: 189-193; Perez de Ribas 1944: II, 19-23).

It is perhaps indicative of the extent to which maladies like typhus were spreading at this time that, in January, 1615, 350 Pima Bajo left their homes along the middle Rio Yaqui and travelled to San Felipe⁷⁴. During the spring of the following year, 1616, another 174 Nebomes left their village in the sierras, as did a third group late in 1616⁷⁵. Although the Jesuits attributed this exodus to Nebome impatience for baptism, it is apparent that the Nebome hoped that baptism would provide some measure of protection from and a cure for disease. Perez de Ribas (1944: II, 255-256), in fact, noted that 3 adults who came south in January, 1615, died en route, and another 5 died after they reached San Felipe⁷⁶. Perez de Ribas (1944: II, 255-256) further noted that one native who came south in January arrived at San Felipe in a "death trance...so leprous that there was not a part of his body, from his head to his feet, that was free of disease"⁷⁷.

The Epidemic of 1616-17

At the height of the Nebome exodus, in 1616, northern Sinaloa and southern Sonora were beset with an epidemic of what may have been fulminating smallpox. Our knowledge of this epidemic comes mainly from a letter written in June 1617 (HHB 1617) by Perez de Ribas. In his letter, Perez de Ribas noted that the province of Sinaloa had suffered for a year from **el cocolistli**. Perez de Ribas probably was referring here to smallpox and/or measles. During the winters of 1615 and 1616 both maladies reached epidemic proportions in Mexico City (Gibson 1964: 449), whence they apparently spread to other parts of southern Mexico (Grijalva 1924: 269). Tello (1891: 807) mentioned an outbreak of smallpox in Jalisco in 1617. The epidemic apparently continued the following year and was referred to by Arregui (1621: 26-27) as **Cocolistli**.

In his letter of June 1617, Perez de Ribas noted that the Yaqui were suffering from **el cocolistli** at the time he and Tomas Basilio founded the first permanent missions among the Yaqui, in May 1617. During their first 6 weeks, the two Jesuits reportedly baptized 1600 infants, a large number of whom died. Another 100 adults, almost all of whom were sick and in danger of dying, also were baptized. However, of these, only "some" ('**algunos**') died (HHB 1617: 994-945). This apparent low case frequency and mortality rate for adults strongly suggests that the Yaqui had suffered from **el cocolistli** on a previous occasion — probably in 1601-02 or 1606-07. Like the Mayo, the Yaqui were in contact with the Jesuits and with other Cahita under mission tutelage for at least a decade prior to Perez de Ribas and Basilio's **entrada**⁷⁶.

The epidemic that afflicted the Yaqui in 1617 affected numerous groups in the foothills and mountains of southern Sonora. Perez de Ribas

implied as much when he noted that he and Basilio were visited by delegations of Nures, Sues [Zoes?], Yhios [Varohios?], Baciroas, Tetaribes, Tehatas, Conicaris, Tepagues, and other groups that brought their sick children to the Yaqui to be baptized. According to Perez de Ribas, these **Serranos** also petitioned Father Diego de la Cruz to come to their lands. La Cruz, who recently joined Mendez among the Mayo, acceded to the natives request, and in one day baptized over 100 individuals (HHB 1617: 947-949), many of whom apparently were ill⁷⁹.

At the time Sinaloa and southern Sonora were suffering from **el cocoliztli**, the mountains to the east were rocked by the Tepehuan revolt⁸⁰. The uprising began in November 1616, and involved a rebel force that was drawn from hundreds of communities throughout the sierras (Perez de Ribas 1944: III, 183-186). The rebels killed several hundred Spaniards, including 8 Jesuits, before the uprising was quelled in 1618. Significantly, like the earlier Acaxee and Xixime revolts, the Tepehuan uprising totally disrupted trade and communication (Dunne 1944: 164). It is possible, therefore, that the introduction and spread of smallpox and/or measles was limited in 1616-17 to the pacific slopes of the Sierras.

The Epidemic of 1622-25

During the years following the Tepehuan revolt, the Jesuits spent most of their time in the Sierras reconstituting dozens of mission communities that were destroyed or abandoned during the revolt. The mission frontier along the Pacific slopes of the Great Divide meanwhile continued to advance ever northward. In 1619, there were tens of thousands of gentiles in Sonora that petitioned in earnest for priests and baptism. As we have seen, in 1616-1617, one or more maladies spread well up into the foothills and

mountains of southern Sonora. In 1619, Sinaloa and Sonora again suffered from famine and disease (AGN 1619a: 241). Among those affected were the Yaqui, many of whom reportedly died from *el cocolixtli* (AGN 1620: 260; HHB 1619). The Nebome or Pima Bajo apparently also suffered at this time. After more than a decade of petitioning for priests, in June, 1619, Father Diego de Guzman visited the Nebome to baptize their infants and sick. Guzman reportedly baptized over 1700 children and adults, many of whom apparently were in danger of dying (AGN 1619a; AGN 1619b; Bannon 1955: 28-29; Perez de Ribas 1944: 151). Around the time of Guzman's *entrada*, an unnamed Jesuit also paid a visit to the Ayvinos, a branch of the Eudeve-Opata who were centered about the Rio Matape. The *anua* of 1620 (AGN 1620: 256-257) has several accounts of sick natives who were baptized and who died⁸¹ that seem to indicate the Ayvino also suffered in 1619-20 from Old World disease.

The food shortages and outbreaks of disease that plagued Sinaloa and Sonora in 1619-20, continued for several years (AGN 1621; AGN 1622) before smallpox and several other maladies finally reached epidemic proportions. The epidemic that began in 1623 eventually affected settlements as distant as Zacatecas and Ures, along the Rio Sonora. Several sources noted the epidemic was the worst that had ever been seen, killing large numbers of natives on both the eastern and pacific slopes of the Great Divide (AGN 1623: 90; AGN 1625: 138). As often was the case, a variety of maladies were involved in the epidemic, although the most lethal appears to have been smallpox (AGN 1626: 148).

In the *anua* of 1625, Father Juan Lorenzo wrote that the epidemic began in Sinaloa in October, 1623, and lasted for two years, finally subsiding

in 1625 (AGN 1625: 137, 138; AGN 1626: 144). Over the course of many months, the Jesuits worked day and night attending to countless natives who contracted smallpox, typhus, pneumonia, and other maladies. In some villages the priests had to care for 300 people who were ill at one time. The job of caring for the sick was made difficult by an unprecedented famine that coincided with the epidemic. Hunger and disease prompted many natives to abandon their missions and to flee into the foothills or scrubland of the coastal plain (AGN 1623: 95; AGN 1625: 139). In response to this exodus, some priests reportedly travelled over 400 leagues, attending to the sick and burying the dead (AGN 1623: 95). In the **anua** of 1625, Father Lorenzo noted that the reports that were sent to Mexico City indicated that more than 8600 natives died during the epidemic in Sinaloa and Sonora. Significantly, Lorenzo further noted that this number did not include many who died in the **monte** without the sacraments (AGN 1625: 137).

Although it is clear from the **anuas** that large numbers of natives suffered and died in Sinaloa and Sonora, the areal extent of the epidemic remains unclear⁸². Since most older mission communities had been exposed to maladies like smallpox and typhus, the epidemic presumably exacted its heaviest toll among the Jesuits' newest converts, including the Nebome or Pima Bajo. At the time of the epidemic (1623), the Jesuits had organized two mission districts or **partidos** along the middle Rio Yaqui with over 10,000 Nebome⁸³. Although the **anuas** largely are silent about the fate of these missions during the years spanning the epidemic, Perez de Ribas (1944: II, 157) noted that many Nebome children and adults died during the first few years of missionization. The Nebome of the middle Yaqui were probably not the only Pima Bajo, however, that were affected by the epidemic of

1623-25. The ~~annua~~ of 1623 indicates that Pima Bajo from Ures (Hures), along the middle Rio Sonora, regularly visited the Jesuits as well as their Nebome relatives⁸⁴ (AGN 1623: 95-96). These contacts undoubtedly led to the spread of disease far beyond the mission frontier.

The Ayvino and Batuco, two branches of the Eudeve-Opata, and the Sisibotari Opata of the Rio Sahuaripa, also must have suffered during the epidemic of 1623-25. As we have seen, there is reason to believe that the Ayvino were affected in 1619-20 by one or more maladies that made their way up the Rio Yaqui. The Batuco and Sisibotari Opata also may have been affected by Old World diseases at this time. In 1619, both groups initiated regular contacts with the Jesuits, petitioning for priests and baptism. These contacts or visits increased over the years⁸⁵, and undoubtedly facilitated the spread of disease in 1623-25. Indeed, it is perhaps indicative of the spread of disease that Father Pedro Mendez noted the death in 1624 of "Gran Sisibotari" (AGN 1628b: 345), the Chief of the Sisibotari Opata and a frequent guest of the Jesuits.

The Opata were not the only group beyond the mission frontier that suffered in 1623-25. In a report covering the years 1625 and 1626 (AGN 1626) there appears a letter of Father Julio Pascual, wherein the priest notes that around the first of the year, 1626, a delegation of Chinipa travelled to San Felipe to ask for priests — "because many of them were dying..." (AGN 1626: 148). Like the Opata and other native groups, the Chinipa had petitioned for priests and baptism for many years prior to this latest visit in 1626. These requests apparently followed exposure to disease and were answered with brief visits by priests who were working along the Rio Mayo⁸⁶. Accordingly, in his letter, Pascual noted that when he reached the

Chinipa, around March 1626, he found only 20 out of 80 children were alive that had been previously baptized by Father Miguel Godinez⁸⁷. Pascual reported that there were many other children that had been baptized by Father Julio Castini between 1620-1626, and of these, "more than a third were dead" (AGN 1626: 148-149).

After ravaging Sinaloa, smallpox and other maladies spread up into the foothills and mountains about Topia and San Andres (Alegre 1958: 353). Very little is actually known, however, about the epidemics' impact on the Acaxee and Xixime. The Jesuit Provincial who prepared the annual reports for 1623 and 1624 noted that the local superiors of the San Andres/Topia missions failed to send reports covering these years (AGN 1623: 94; AGN 1624: 123). In the annual report for 1623, the Jesuit Provincial did note, however, that he had received a letter from a Jesuit that recently had been assigned to the Topia/San Andres mission. In his letter to the Provincial, the new recruit (Bartolome Soledano) mentioned several instances where Saint Ignatius miraculously interceded on behalf of natives who were sick with fevers and pneumonia (*dolor de costado*) (AGN 1623: 94).

Although direct evidence is lacking, the Tepehuan and their northern neighbors, the Tarahumara, probably also suffered during the epidemic of 1623-25. Unfortunately, it is difficult to determine what impact, if any, the epidemic had on this region, since the local superiors of the Tepehuan mission also failed to send an annual report to Mexico City for the years 1624 (AGN 1624: 122) and 1625 (AGN 1625: 137). As was the case elsewhere, the epidemic apparently created great havoc among the Tepehuan and southern Tarahumara, so much so that local superiors had no time to file yearly reports.

Another reason for believing the Tepehuan and Tarahumara suffered in 1623-25 is the fact that their neighbors, the Laguneros of Parras, were devastated by disease during these years. The *anua* of 1623 states that smallpox, pneumonia (*dolor de costado*), typhus (*tabardetes*), and what may have been influenza or a secondary infection like streptococcus (*garrotillo*) ravaged the Zacateco and Irritila. Never before had diseases so terrible and contagious been seen in the Laguna region (AGN 1623: 90). The *anua* of 1624 (AGN 1624: 122-123) indicates that the "major part" of the mission population of Parras as well as innumerable gentiles from the *tierra adentro* suffered from one or more diseases. Many who suffered must also have perished, as census data from 1625 (Hackett 1926: 156-157) show the mission population of Parras numbered 1,569 — a mere fraction of the aboriginal population of the region (Perez de Ribas 1944: III, 293). According to Tello (1891: 779-780), around the same time the Laguneros were suffering (ca. 1625), large numbers of blacks, mulattos, mestizos and Indian mine workers died in Zacatecas from many different diseases.

The Epidemic of 1638-41

The devastation wrought by the epidemic of 1623-25 contributed to a temporary slowing of mission expansion on both the pacific and eastern slopes of the Sierra Madre. Even before the epidemic began, the Jesuits had spread themselves thin. Between 1614-1626, over 85,000 natives were baptized in Sinaloa and Sonora (Dunne 1940: 218). Despite a four-fold increase in the size of the mission population, there were still only 27 priests working in all the west coast missions in 1625⁸⁸. This was hardly enough priests to instill within those that had been baptized an appreciation of the rights and responsibilities associated with Christianity. The Jesuits also

were keenly aware of the fact that many of their recent converts lost numerous friends and relatives during the epidemic of 1623-25. Experience had shown that epidemics often were catalysts for native revolts — revolts that claimed Jesuit lives and often caused irreparable damage⁸⁹. Before the mission frontier could move forward, then, it was imperative that the Jesuits win over the hearts and minds of the many thousands that already had agreed to missionization.

During the decade following the epidemic of 1623-25, the Jesuits contented themselves with the establishment of only a few new missions, principally among the Chinipa, Eudeve-Opata, and the Opata of Sahuaripa⁹⁰. This limited expansion added a relatively small number of new converts to the total mission population⁹¹. Correspondingly, the mission population as a whole experienced a small increase in the number of individuals who had little or no history of exposure to disease. Of course, by 1626, most Cahita, Acaxee, Xixime, Tepehuan, and Lagunero converts had acquired some immunity to smallpox, measles, and other maladies through repeated exposure. Between 1626-36, then, there apparently was never a sufficiently large "herd" or group of susceptibles to support an epidemic like that of 1623-25⁹². As we have seen, a similar situation obtained in southern Mexico during the period from 1550-1575, following the dislocations of the initial conquest period.

During the late 1630's several developments brought tens of thousands of natives with little or no experience with Old World diseases in contact with smallpox and other maladies, triggering a new and almost relentless wave of epidemics in the north. Of particular importance was the discovery in 1631 of vast silver deposits at Parral, which brought thousands of

Tarahumara in contact with Spanish miners, merchants, and, later, the Jesuits. Similarly, in 1638-39, the Jesuits embarked on the reduction and missionization of the Opata of central and eastern Sonora. With these contacts, both the Tarahumara and Opata became "breeding grounds" for what appear to have been new and more virulent diseases, many of which swept across northern New Spain.

The model outlined above accords well with the epidemic of 1638-41. Like most disease episodes, the epidemic apparently originated in the south. In 1634-36, many areas of southern Mexico suffered from a *cocoliztli* that was characterized in part by malignant fevers (Alegre 1958: 440-441; Zavalo y Castelo 1945: VII, 67-68, 70-71, 80-81). Apparently, one or more disease agents were carried north to Zacatecas in 1636. That year, and for several years thereafter, disease wrought disaster among the native labor force. As evidence of a prior calm or quiescence, it is interesting to note that in 1637 the **Cabildo** of Zacatecas re-appointed a city doctor, a post that had been allowed to lapse (Bakewell 1971: 200).

The year that Zacatecas suffered, smallpox appeared several hundred miles to the northeast, in Monterrey. There it raged for several years, killing large numbers of Indians (Del Hoyo 1972: 413-414). In 1638, smallpox may have accompanied one of many mule and wagon trains that brought silver, litharge, and lead from Monterrey to Parral, Zacatecas and other mining centers (De Leon 1909: 85-86). In a letter written by Father Gaspar de Contreras, and dated August 5 1638, the priest noted that countless Tarahumara along the Rio Balleza were dying from smallpox⁹³. News of the epidemic was brought back to Parral by muleteers that visited the Tarahumara, exchanging wool and other goods for maize. According to

Contreras, this trade had been going on for seven years. Because of the natives' great desire for clothing, some Tarahumara also worked for months at a time in the mines of Parral (AGN 1638: 286-287; Sheridan and Naylor 1979: 11-13).

The smallpox epidemic that affected the Tarahumara in 1638 apparently continued for several years, infecting numerous Tarahumara, Tepehuan, Concho, and Toboso communities in southern Chihuahua (Alegre 1959: 10; DHM 1645: 130-143; Griffen 1979: 5, 100). Although it is difficult to demonstrate, smallpox and other maladies may have been carried north from Parral to New Mexico in ca. 1636. Accordingly, in a report that was written a month after Father Contreras wrote of smallpox among the Tarahumara, Fray Juan de Prada⁹¹ noted that smallpox and *cocoliztli* had raged for several years in New Mexico. Indeed, the Franciscan prelate commented that while more than 60,000 natives had been baptized in New Mexico, the Pueblo missions had declined to around 40,000 because of "...the very active prevalence during these last years of smallpox and the sickness which the Mexicans called *cocoliztli*" (Hackett 1937: 108). In 1640, 3,000 additional natives in New Mexico perished during an epidemic (Scholes 1936: 324; Schroeder 1972:54).

At the time southern Chihuahua and New Mexico were infected with smallpox and *cocoliztli*, one or more maladies reached epidemic proportions in central Sonora. Our knowledge of this disease episode is derived largely from a report (AGN 1639a) detailing the founding of a permanent mission in the middle Sonora Valley. Several months after the Jesuits took up their new station, in November 1639, an epidemic involving some unspecified disease⁹⁵ began in the Sonora Valley that lasted until the following April, 1640.

Although many natives reportedly died, the Jesuits also noted that many natives regained their health after being baptized⁹⁶. Indeed, the number that recovered was so great that the priests had difficulty convincing the Opata that baptism was more of a cure for spiritual ills, rather than diseased bodies. Although there is little in the report or *puntos* that would enable us to identify the disease that was affecting the Opata at this time, it clearly was a disease the Opata had been exposed to before⁹⁷.

Unfortunately, it is difficult to determine whether the epidemic that affected the Sonora Valley in 1639-40 spread to other parts of the Opatería as well as the Pimería Alta. In the report discussed above (AGN 1639a), the Jesuits noted that there were a number of "nations" near the Sonoras that petitioned for priests and baptism. The Jesuits presumably were referring here to Opata communities along the headwaters of the Rio Sonora, along the Rio Moctezuma, and in the San Miguel Valley. As noted in chapter 3, the Opata of the Sonora Valley also traded with the Seri and Pima Bajo. Whatever malady penetrated the Sonora Valley in 1639-40, the chances seem excellent that it affected these neighboring populations to the east, north, and west. It also may have been the case that disease agents unleashed in the Sonora Valley subsequently spread southward. A year after the epidemic subsided in the Sonora Valley, in 1641, many mission converts in the older west coast missions to the south were affected by some unspecified disease(s) (Alegre 1959: 10).

The Epidemic of 1645-47

Although the Sonora and other Opata groups had for many years requested priests and baptism (e.g. AGN 1635: 263), the establishment of permanent missions in the Sonora Valley was more of a response to plans by

Captain Pedro de Perea to colonize Sonora⁹⁸ (Polzer 1972: 136-138). In 1637, Perea, who was the **Alcalde Mayor** of Sinaloa, apparently convinced the Viceroy to divide Sinaloa into two provinces. The northern-most, Nueva Andalusia, included all lands to the north of the Rio Yaqui. Under the terms of a contract drawn up with the Crown, Perea was appointed **Alcalde Mayor** of Nueva Andalusia and was given four years to establish mines, farms, and otherwise promote the development of Sonora. When it became apparent to the Jesuits in 1639 that Perea was going through with his plans — plans that threatened the priests' long-standing commitment to missionize Sonora — the Jesuit's moved quickly into the Sonora Valley. Perea, however, persisted and during the summer of 1645, the Captain brought four Franciscans and an unknown number of Spaniards from New Mexico, assigning lands and converts along the upper Rio Sonora, the Rio San Miguel, and the Rio Bavispe. Significantly, within a month or so of Perea's arrival in Sonora, Perea became seriously ill. At the same time that the Captain became ill, many Opatas in the Sonora Valley were affected by an unidentified epidemic⁹⁹. Perea subsequently recovered from his illness, only to suffer a relapse. After an unspecified period of time, during which Perea was prostrated and unable to converse¹⁰⁰, the Captain died on October 4, 1645 (AHH 1666; Polzer 1972a).

The events surrounding Perea's attempt at colonization suggest that the Captain's death was inextricably tied to the epidemic that swept through the Sonora Valley in July and August 1645. Like many Spaniards in Sinaloa, and Mexico as a whole, Perea probably harbored plasmodium parasites. Perea, however, may not have been the only member of his entourage that was suffering from malaria. In 1651, Father Manuel de Truxillo noted that

two of the Franciscans that accompanied Perea to Sonora died in 1648, apparently from disease¹⁰¹. Interestingly, the **anua** of 1648-49 indicates that at this time the Opata missions of central Sonora were affected by an epidemic of "malicious fevers" (AGN 1649: 97-98).

The two Franciscans that died in 1647 apparently had been working among the Opata of Teuricatzi and Baserac. While it is unclear whether these Opata suffered from malaria or "malicious fevers", some malady apparently was affecting the Guasabas Opata immediately to the south. This much can be inferred from a letter recounting the founding of the first permanent Jesuit missions along the Rio Bavispe. Of particular significance is Father Marcos del Rio's comments that many of the 4,000 Guasabas that were baptized by the Jesuits in 1646-47 recovered from some unspecified illness after being baptized or blessed by the priests (**imposicion de los manos**). According to Del Rio, there also were many others who "left this life for eternal happiness" (AGN 1647: 31; AGN 1647a)

The impression one gets from Del Rio's comments is that the Guasabas were not afflicted with smallpox or some other easily recognizable disease; Del Rio's vagueness points to a more insidious malady, like malaria. As noted, around the time of Del Rio's entrada, the Opata of central Sonora suffered from "malicious fevers". In 1647, many Tarahumara and Tepehuan pueblos to the south also were afflicted with disease, as were the Xixime (Alegre 1959: 61-63; AGN 1647: 32-34; AGN 1647b; Perez de Ribas 1896: I, 304). The **Carta Anua** for the following years (1648-49) gives several examples of people who suffered, one involving a Tarahumara woman with "pernicious fevers", and another who "suffered from a very grave illness, and lost her speech" (AGN 1649: 98). These symptoms are reminiscent of those

exhibited by Captain Perea during his apparent bout with malaria in 1645. Whatever the malady was, it wrecked havoc among the Tarahumara, particularly the mission of San Miguel de Bocas. The epidemic reportedly lasted for 5 months, and while many died, many natives also were miraculously cured. Indeed, the *anua* implied that the epidemic was unusual in this regard, since it was common for disease to "take entire villages to the grave"¹⁰².

The Epidemic of 1652-53

In 1648, a year after one or more maladies reached epidemic proportions in Nueva Vizcaya, four Tarahumara *caciques* and several hundred of their followers staged a short-lived rebellion (DHM 1651; Dunne 1948: 46-58). Again in 1650 and 1652 the Tarahumara rebelled, once more suffering defeat at the hands of Spaniards and fellow natives (Dunne 1948: 58-80). Significantly, in a report dated June 29 [1652], Father Jose Pascual noted that at the end of the uprising, the Tarahumara were decimated by a severe plague that lasted for 2 months, and which left some *rancherías* without a single survivor. Pascual further noted that many Tarahumara, particularly the young people, were disfigured with scars (Alegre 1959: 236; DHM 1651: 205-207; Sheridan and Naylor 1979: 28-29).

Pascual's comment regarding Tarahumara youth who were left with scars is perhaps indicative of smallpox¹⁰³. In 1652, smallpox and *cocolistli* also reached epidemic proportions to the south, in the once populous Laguna region (Alegre 1959: 266; Decorme 1941: II, 33; DHM 1653: 211; Perez de Ribas 1896: II: 556). The following year, 1653, Sinaloa and Sonora also experienced an epidemic of smallpox and other maladies that were accompanied by drought (Alegre 1959: 236; AGN 1653a; AGN 1653b; Perez de

Ribas 1896: II, 498). Apparently as a consequence of the spread of disease beyond the mission frontier, many Pima Bajo and Tarahumara gentiles in the mountains near Yecora fled their homes seeking baptism at Onabas¹⁰⁴ (AGN 1653a). The yearly report from the mission of San Francisco Xavier, which encompassed the Pima Bajo and Opata missions along the Rio San Miguel and the Rio Sonora, also seems to indicate that Old World diseases were out distancing the mission frontier in northern Sonora. The report (AGN 1653a: 134-135) noted that many Himeris who bordered the Opata on the northwest were visiting the Jesuits along the Rio Sonora and Rio San Miguel, petitioning for priests and baptism. Indeed, by 1653, there already were a "good number" of Himeris at Bacobitzi and 160 in the San Miguel Valley that had been baptized by the Jesuits. After giving several examples of "divine intercession" involving Pima children at Ures who were suffering from what may have been dysentery¹⁰⁵, the ~~puntos~~ cited cases of "bloody stools", frequent problems with birthing, and upper respiratory infections that afflicted the Himeris and their Pima Bajo and Opata neighbors. The same report from the Mission of San Francisco Xavier also noted that a "cruel" epidemic of bloody stools, pneumonia (**dolor de costado**) and upper respiratory problems (**hinchacon de garganta**) raged in 1653 in the **Partido** of Baserac, which included Opata settlements at Baserac, Bavispe and Guachinera, and also a Summa **rancheria** with over 200 inhabitants (AGN 1653a: 137-138).

More Epidemics

Between 1639-1653, the Jesuits baptized tens of thousands of Opata and Tarahumara. While a good number of these converts died during various epidemics, many survived in 1653 and required instruction in Christianity. It was particularly important that the Jesuits intensify their indoctrination

efforts among the Tarahumara, who rebelled in 1648 and 1650-52. These revolts against mission life threatened to spill over into Sonora, where recent epidemics left many Opata and Suma with doubts regarding the efficacy of Christianity. After 1653, then, the Jesuits once again sought to consolidate, rather than expand their missionary activities. The fact, however, that the mission frontier became largely stationary did not preclude outbreaks of disease. In 1657-58, for example, southern Sonora was affected by an epidemic of what appears to have been influenza¹⁰⁶. The epidemic spread well up into the Sierras of Chihuahua, beyond the mission frontier (AGN 1656; AGN 1658). There were more epidemics during the 1660's that claimed many lives, particularly children, on both the eastern and western slopes of the Sierras (Alegre 1959: 266-279, 285; Decorme 1941: II, 33; DHM 1662: 217-218; Del Hoyo 1972: 414; DHM 1668: 224, 229; DHM 1669: 259). Some of these epidemics undoubtedly spread well up into the Pimeria Alta. It was perhaps a consequence of the spread of disease beyond the mission frontier that the Jesuits working along the fringes of the Opatería often were visited by Pima who sought baptism¹⁰⁷ (AGN 1678b). As we have seen, requests for priest and baptism often followed exposure to disease.

Although northern New Spain continued to experience epidemics after 1660¹⁰⁸, by this date, most native populations had been irreparably damaged or destroyed. Rather than continue with a chronology of disease episodes, it behooves us to assess the damage wrought by disease.

NOTES TO CHAPTER V

1. A concise account of this first New World pandemic can be found in Crosby (1967).
2. Mendieta (1945: 173), among others, believed the epidemic destroyed as much as half the native population of New Spain. Cieza de Leon (1959: 252) reported that 200,000 natives died in the Quito provinces.
3. During the decade preceding Guzman's conquest, the population of Tlaxcala, whence many of Guzman's Indian allies were recruited, declined from 500,000 to 250,000, largely as a result of introduced-diseases (Gibson 1952: 142).
4. Guzman's interpreter, Garcia de Pilar, reported that the the storm struck on September 20, several months after the army reached Aztatlan (Carrera Stampa 1955: 138-139; 185).
5. The highest incidence of malaria in most areas of the world is generally during the rainy season when flooding occurs (Christopher 1949: 711-13).
6. The mosquito's effectiveness is well illustrated by the fact that, as late as 1928-1938, Nayarit and Sinaloa had a mortality rate from malaria of 245 deaths per 100,000 (Faust 1949: 757).
7. There have been numerous instances where epidemics of malaria, some of which have claimed thousands of lives, began after one or more individuals harboring plasmodium entered an area where anopheline mosquitoes and susceptible hosts co-existed in large numbers (e.g. Christophers 1949: 707; Harrison 1978: 203-207).
8. Although Guzman apparently did not become ill at Aztatlan, he did suffer from what may have been a malarial attack some six months or so after the epidemic, while leading a foray into the sierras in search of the Seven Cities (Bancroft 1886: 36-37). Logic dictates that there were other members of the expedition besides Guzman — Spaniards as well as Indians from central Mexico — who harbored *Plasmodium*. Malaria apparently became endemic in the Caribbean and along the Gulf Coast of Mexico within decades of the Conquest (see Aguirre Beltran 1940: 191-192; Thompson 1970: 57). The disease undoubtedly was contracted by many Spaniards shortly after they reached the New World, particularly while in Cuba, Hispanola, or after disembarking at Veracruz. There are in fact numerous historical references to the early **Conquistadors** suffering from "**tercianias**" (e.g. Tello 1891: 46-47)

9. By 1542 half the population of Nueva Galicia was said to have been destroyed (Bancroft 1886: 552). Although this decline often has been attributed largely to Guzman's cruelty during the Conquest of Nueva Galicia and to native losses during the Mixton War, both led to short-term population reductions and were of minor importance relative to acute and chronic infectious diseases.

10. Although the measles pandemic in Mexico took countless lives, the mortality rate was not as great as during the previous smallpox episode (Mendieta 1945: 174). Mendieta attributed this difference in mortality rates to the fact that many Indians refrained from taking sweat baths and were cared for by Spaniards.

11. Tello (1891), who is our chief source, does not indicate precisely when measles was introduced in Nayarit and Sinalca. He does indicate, however, that it was around the time that Cristobal de Tapia succeeded Proano as Alcalde Mayor of San Miguel de Culiacan (ca. 1534) (Bancroft 1884: 59).

12. In ca. 1535-36, two-thirds (100) of the residents of San Miguel abandoned the Villa for the greener pastures of Mexico City and Peru (Tello 1891: 254-255).

13. It is not clear from Tello's brief comments precisely what area he was referring to when he noted that 130,000 Indians of Culiacan died during the epidemic. In one sentence, Tello referred to the "**costa y valle**", presumably the coast and valley of the Rio Culiacan. However, subsequently Tello noted that the epidemic left but 20,000 Indians alive in "those provinces". This last statement would seem to imply that the epidemic affected Tahue settlements along the Rio San Lorenzo and Elota as well as the Rio Culiacan and its tributaries (Humaya, Tamazula). All three river valleys were sometimes spoken of as the "province of Culiacan", and together, may have had an aboriginal population that exceeded 150,000.

14. Both Cabeza de Vaca and the authors of the Joint Report mentioned or alluded to the four Christians being unable to "cure" some of the sick who were encountered in western Texas and northwest Mexico (Cabeza de Vaca 1944: 45; Hedrick and Riley 1974: 52). Whether these Indians died and how numerous they were is not apparent. The author knows of only one explicit reference by Cabeza de Vaca to an Indian who was ill that subsequently died (Cabeza de Vaca 1944: 45).

15. Trachoma was once widespread in Texas, and as late as twenty years ago, large numbers of people in Coahuila, Chihuahua, and Sonora suffered from the disease. It is uncertain, however, whether trachoma was present in the New World prior to the Conquest. The disease could have been brought from Asia to the Americas by big-game hunters that crossed the Bering straits during the millennia preceding the Christian era (Freyche 1958).

16. Since the body does not differentiate between real and imagined threats, psychological pressures can have a profound impact on the health of a population (McElroy and Townsend 1979: 269).

17. De Niza's Franciscan companion, Fray Onarato, did become ill from some

unspecified malady shortly after De Niza's party left San Miguel. Fray Onarato, however, only travelled as far as Petatlan. There is no indication that other members of De Niza's party subsequently became ill.

18. Smallpox and measles often were referred to in Nahuatl as **hueyzahuatl** and **zahuatl tepiton**, respectively (Gibson 1964: 448).

19. Apparently in some areas of Mesoamerica the native population actually increased in numbers during the third quarter of the sixteenth century (e.g. Kubler 1942, 1948; Spores 1967: 75).

20. It should be noted that measles and other diseases may have had a significant impact on the Zacateco, Tepehuan, and other native populations close to the burgeoning mining frontier in Durango. Also, Obregon noted in his chronicle that Ibarra's **maestro de campo** (Betanco) suffered from measles in 1564 (Hammond and Rey 1928: 88-89). Obregon may have been confused about Betanco's illness, however, since most Europeans in the sixteenth century contracted measles during childhood.

21. The appearance of new and more virulent strains of virus is perhaps reflected in Perez de Ribas' observation regarding the measles and smallpox epidemic of 1593 in Sinaloa. Perez de Ribas implied that both maladies were unusually contagious and lethal: "**...aunque de viruelas y sarampion; pero tan contagiosa y pestilencial que a montones llevaba a la muerte a los indios**" (Perez de Ribas 1944: I, 172).

22. Although Florencia and other historians reported that Spaniards, mestizos, and other mixed bloods did not suffer during the epidemic, some apparently did suffer and die from typhus, dysentery, and/or typhoid. In a letter to the King, dated February 25, 1577, the Superiors of the Convent of Santo Domingo in Mexico City noted that almost 600,000 Indians had died during the preceding 8 or 9 months, along with many religious (Cuevas 1922: II, 500-501).

23. The extent of native contact with Spanish miners during the decades prior to missionization is reflected in several letters describing the first Jesuit contacts with the Tepeguar, Zacatecos, and Laguneros. Father Nicolas de Arnaya (DHM 1601) noted, for instance, that many men and women of Parras and the Rio Nazas worked voluntarily or were pressed into service as servants in the houses of Spaniards. Reportedly, some natives travelled 60 or 80 leagues to work for the Spaniards, "so that they could to return to their lands well dressed". Continuing, Arnaya noted that there was one pueblo along the Rio Nazas where the residents were particularly well dressed, and had dealings with Spaniards for many years (AGN 1601: 67-68). In a letter written in August, 1594, Father Geronimo Ramirez described the first Jesuit **entrada** among the Zacateco. Ramirez noted that he was greeted at Cuencame by many natives on horses that were well dressed, some of whom, worked in nearby mines. Ramirez also noted that during his stay in Cuencame he was lodged in an adobe house that belonged to a Tarascan Indian from Michoacan (Alegre 1956: 422; Ribas 1944: III, 250). Similarly, Ramirez's companion, Father Juan Augustin de Espinosa, noted that, while he was visiting a Zacateco pueblo along the Rio Nazas, a Spaniard came to the pueblo looking for several Indians who owed him money or labor (Alegre 1956:

423-424; Perez de Ribas 1944: III, 251-253).

24. Perez de Ribas (III, 145-146) wrote of one idol that was "much celebrated" among the Tepehuan. The idol was carved from stone, approximately 40 inches tall, with a man's head and a column for a body. The idol was kept at the summit of a hill near a Tepehuan pueblo, and was surrounded by offerings of arrows, animal bones, **ollas**, herbs, tree branches, and other decoration. Near this idol was another of stone, in the form of a **caracol**. The **anua** of 1596 (DHM 1596: 24) tells of another idol that was attended to by a Tepehuan **hechizero** who was 70 years old. The idol reportedly was made of stone, "like jasper", the size of a large apple, and was wrapped in thin sheets of what apparently was human skin. The **hechizero** reportedly acquired the idol one day when the stone happened to roll down a hill, stopping near to where the man was sitting with several companions. The stone spoke to the **hechizero**, telling him he should care for it because it would help him in battle, particularly against the Chichimecs, and because the stone had the power to bring or halt sickness. The **hechizero** noted that the idol also gave advice on many other matters, and could not be seen by others for fear of death.

25. Perez de Ribas (1944: III, 248) related much the same story.

26. Alegre (1958: 108) presented a slightly different version of Arista's letter, wherein the burial was described as consisting of:

"many graves, filled with skulls and human bones, which the Indians had covered with many stones; so that their dead might not be seen. The rocks that formed this mountain [covering the graves] were marked with letters or characters, in blood, in places so high that only the devil could have formed them; [the letters or characters were so] well formed and placed that after many years neither rain nor wind had erased or diminished them."

27. During the latter half of the sixteenth century there apparently were many mulattos and mestizos who worked as free laborers, drifting in and out of the mining camps and **reals** of northern New Spain (West 1949: 48-49).

28. The wholesale destruction of the once populous province of Culiacan may have been a major consideration in the relocation of the Villa of San Miguel from the Rio San Lorenzo to the Rio Culiacan, sometime between 1582-1600 (Brand 1978: 200).

29. Spanish occupation of northern Sinaloa was initiated by Ibarra with the founding of the town of San Juan de Bautista de Carapoa on the Rio Fuerte, in 1564. The town and its 17 residents, including 2 Franciscans, promptly was destroyed by the Suaqui. In 1583, Pedro de Montoya founded a second town on the Rio Fuerte, naming it San Felipe y Santiago de Carapoa. Within a year, Montoya and 12 of his men were massacred by the Suaqui. The few Spaniards who survived retreated to the Sinaloa River where another Villa of San Felipe was founded. Only a handful of Spaniards were still residing at San Felipe when fathers Tapia and Perez arrived in July, 1591 (Alegre 1956:

346-364; Dunne 1940; HHB 1633; Perez de Ribas 1944: I, 145-162; Shiels 1934).

30. In one such letter, Tapia and Perez noted that they had learned that there were more than 100,000 Indians living in pueblos and communal settlements along the Rio Mocorito, Sinaloa, Fuerte, and Mayo. The priests went on to note that the Cahita and their neighbors were great farmers and merry-makers and enjoyed many temporal blessings (AGN 1593; Shiels 1934: 109). Antonio Ruiz, the **Alcalde Mayor** and a long time resident of Sinaloa, noted in his chronicle or history of the northern frontier (AGN n.d.; op. cit., Sauer 1935: 17) that he counted 24,000 houses on the Rio Mayo in 1583. Although Sauer believed Ruiz or a copyist made a clerical error, substituting houses for people, however one chooses to interpret Ruiz's statement, it supports the idea that groups like the Mayo had not suffered from Old World diseases prior to 1591. The same can apparently be said for other groups like the Cinaloa Indians of the upper Fuerte. In 1594, Father Tapia visited the Cinaloa for the first time and found them living in 24 villages and **rancherías** (Perez de Ribas 1944: I, 173-174). This statement agrees nicely with the Second Anonymous Reporters' observation, made in 1534, that the Sinaloa were living in 20 or 25 villages (Hedrick and Riley 1976: 41).

31. In 1566, some 30 years after the Society of Jesus was founded by Ignatius Loyola, the Jesuits joined the Dominicans, Augustinians, and Franciscans in the New World. The three Jesuits who came to America were slain during an aborted attempt to establish a mission in Florida. A second group of 8 Jesuits were killed in 1571 after coming ashore in Chesapeake Bay. This latest setback prompted Francis Borghia, then General of the order, to search for a more hospitable area to initiate Jesuit work in the Americas. Requests from New Spain for missionaries and teachers seemed appropriate, and in 1572, the first contingent of Jesuits arrived in Mexico. The fifteen priests, including a "Father Provincial" or superior for the Province of Mexico, settled in Mexico City. Here, over the course of the next 15-20 years, the Jesuits worked primarily as educators, founding colleges and schools in Mexico City as well as in Valladolid (Morelia) Patzcuaro, Oaxaca, Vera Cruz, and Guadalajara. In 1591 the Father Visitor to Mexico went over the head of the Mexican Provincial, who was apprehensive about sending priests to the frontier, and instructed Fathers Tapia and Perez to place themselves at the disposal of the Governor of Nueva Vizcaya. Since 1585, Rodrigo del Rio y Loza had asked for Jesuits to be sent to Sinaloa, where he hoped the Jesuits would bring some stability to the northern frontier (Alegre 1956; Dunne 1940; Perez de Ribas 1944: I; Shiels 1934).

32. These "churches" apparently were nothing more than a large **ramada** with an altar (see Spicer 1980: 24-25). Once an individual mission had a firm economic and spiritual footing, the Jesuits supervised the construction of impressive and lasting churches, some of which can be seen today in Sonora (see Roca 1967).

33. Dunne (1940: 30) incorrectly stated that Velasco and Santiago came to San Felipe in 1593. The **anua** of 1593 indicates that the 2 priests arrived in March, 1592. At this time, Tapia suffered a relapse of what seems to have been malaria, which he apparently contracted several years earlier in Patzcuaro (HHB 1633; Shiels 1934: 126-127). At the advice of Father Perez,

Tapia decided that a change in climate might facilitate recovery, and in March, 1592, Tapia travelled to the **Real** of Topia. On at least one occasion, Spanish and Tarascan miners in the **Real** had written to Tapia asking that he visit them. Tapia's illness made just such a visit possible, as did the arrival of Velasco and Santiago. Tapia remained at Topia for 6 or 7 months, attending to the spiritual needs of Spanish and Indian miners and also organizing a Christian Pueblo (Santa Cruz del Valle) near Topia among the Acaxee.

34. The **anuas** of 1592, 1593, and 1594 (AGN 1592, 1593, 1594) as well as Albizuri (HHB 1633) and Perez de Ribas (1944: I) provide a detailed picture of these early years. The early Jesuit experience in Sinaloa also is recounted by Alegre (1956), Decorme (1941), and more recently, by Dunne (1940, 1944) and Shiels (1934). These later writers all relied heavily on the **anuas** and Perez de Ribas.

35. Under the terms of the **Patronato Real**, the Jesuits and all other missionary orders had to have permission from the Crown or its officers (Viceroy) to establish new missions. The Crown, in turn, subsidized each priest (see Polzer 1976; Shiels 1934: 172-179; Treutlein 1939).

36. Evidence is lacking regarding precisely when Tapia and Castro, and, later, the pack train, reached San Felipe. Tapia and Castro left Valladolid shortly after Tapia took his final vows as a Jesuit, on March 19. The two Jesuits travelled from Valladolid to Zacatecas and then on to Guadiana. Tapia and Castro then travelled over the Sierras to San Sebastian, whence they proceeded up the coast to San Felipe (HHB 1633; Shiels 1934: 140-146). The entire trip probably took around 8 weeks, which would place their arrival at San Felipe toward the end of April or early May. A letter of Father Juan de la Carrera, who accompanied the pack train as far as Zacatecas, indicates that the pack train left Valladolid after March 19, and that it followed the **camino real** of the coast as far as Guadalajara. There heavy rains forced the pack train to proceed to Zacatecas, whence it apparently continued north and then west, over the Sierras via the Topia Road. If we allow 4 months for this entire journey, then the pack train would have reached San Felipe in late July or early August, about the time the epidemic began. Although Alegre (1956: 392) stated that when Tapia returned to Sinaloa he found his fellow missionaries busy coping with the epidemic, most accounts of the epidemic stated or implied that it began after Tapia and Castro returned to Sinaloa (Perez de Ribas 1944: I, 172; Shiels 1934: 142).

37. The epidemic was discussed in detail in the **anua** of 1593 and by Perez de Ribas (1944: I, 172-175). **Puntos Sacados** (AGN n.d.) also contained some graphic comments by Martin Perez regarding the epidemic. Various letters in the **anua** of 1594 (AGN 1594) also gave some idea of the immediate post-epidemic period and the destruction wrought by disease. Nieremberg (1889) also related Brother Castro's efforts at Cuiburi. Alegre (1956: 391-394), Shiels (1934) and Dunne (1940) also provided information on the epidemic, much of which was taken from the **anua** of 1593 and Perez de Ribas's **Historia**.

38. Since, by the Jesuit's own admission, there were many natives that died without ever seeing a priest (Alegre 1956: 392; AGN 1594: 36), it is difficult

to know how many natives suffered and died during the epidemic of 1593. Reports that entire households became ill, and that "almost everyone" (AGN n.d.: 346) suffered, suggest that at least half, and perhaps three-quarters of the mission population of Sinaloa contracted smallpox or measles. Similarly, accounts of accumulating bodies, forming "mountains" (Perez de Ribas 1944: I, 172), or of bodies left where they lay for want of someone to bury the dead (AGN 1594: 36), are suggestive of a high mortality rate. In a letter to a fellow Jesuit, father Tapia noted that two-thirds of the children that he had baptized in Sinaloa died during the epidemic (Shiels 1934: 142-143). Other priests, also lamented the large number of infants and children as well as adults that perished (e.g. AGN 1594b: 55-56; Alegre 1956: 392). At the time of the epidemic, there were approximately 6000 baptized Indians living in 24 mission pueblos (AGN 1594: 33). The majority of these converts were under the age of 30 (Alegre 1956: 392), and probably half were infants and children under the age of 13. A case frequency rate of 75% and a mortality rate of 50% would indicate 4,000 natives became ill and 2,000 died.

39. Father Martin Perez, writing in 1594 (AGN 1594: 34-36), noted that the Bacuburito spoke a dialect of Tahue and had close ties to the inhabitants of the Rio Culiacan. There were 5 pueblos, including Bacuburito, with some 700 Christians in 1594. Many Bacuburito converts apparently were baptized by Franciscan missionaries at the Villa of San Miguel years before the Jesuits came to San Felipe (AGN 1594: 34-36). Perhaps as a result of Spanish mistreatment and exposure to disease, the Bacuburito apparently fled the Rio Culiacan for the foothills above the Rio Sinaloa, where the Jesuits found them in 1591.

40. Around the time of the epidemic, the 3 mission pueblos of the Rio Mocerito as well as Bacuburito and Orabatu had a population of 1588 (AGN 1595: 56-57).

41. It is possible, of course, that the Tahue of the Rio Mocerito and the Rio Culiacan — like their Bacuburito kin — were affected by the epidemic of 1593, but the Jesuits failed to comment on the epidemic's spread southward. As we will see, the inhabitants of the Rio Culiacan were ravaged by smallpox, measles, and one or two other maladies in 1602. The fact that the Tahue suffered at this time indicates they still lacked some immunity to disease. It is also possible that the Tahue were not affected by the epidemic of 1593 because they had weathered a bout with smallpox and measles in 1587-88. At this time many natives in New Spain and New Galicia suffered from a dreaded *cocolistli* (Bancroft 1883: 754-755; Gibson 1964: 449; Mendieta 1945: 174; Tello 1891: 692, 694).

42. The Suaqui and Cinaloa apparently were allied through kinship (Perez de Ribas 1944: I, 173). Tapia's visit to both groups in 1594 followed an earthquake, which many Suaqui and Cinaloa believed was caused by Tapia displeasure over the natives lack of interest in Christianity. To appease Tapia, the Suaqui and Cinaloa sent gifts and asked Tapia to come to their lands to baptize their children. Tapia acceded to the native's request, baptizing some 600 children (Alegre 1956: 394; AGN n.d.: 348; Perez de Ribas 1944: I, 173-174).

43. The Jesuits followed strict rules governing baptism when they entered a

gentile area for the first time (Polzer 1972, 1976). The priests were allowed to baptize infants and children with the parents consent and with the assurance that the children would learn Christian doctrine, and would thus come to understand and appreciate their initiation into the Catholic church. Adults were baptized only after they had received sufficient instruction and understood the basic tenets of Christianity. There was one exception to this rule: priests were allowed to baptize adults who were in danger of dying. The Jesuits often baptized gentile adults who became ill during epidemics. The fact that Tapia did not baptize adults is therefore significant, and supports the idea that the Suaqui and Cinaloa escaped the ravages of disease in 1593.

44. Father Ramirez reported that some of the inhabitants of Cuencame had horses and were well dressed in clothes that were acquired from Spaniards in exchange for labor. Ramirez also noted that there was a Tarascan and an Indian from Culiacan residing in Cuencame (Alegre 1956: 421).

45. In the same sentence where Espinosa remarked that he baptized 17 or 18 children who were in danger of dying (**mas necesitados**), he noted that he heard the confessions of 10 or 12 "old Christians" that presumably were baptized by the Franciscans many years earlier (Alegre 1956: 423). It is conceivable that these Christians also were suffering from smallpox and were in danger of dying, and for this reason, Espinosa heard their confessions. This possibility does not diminish other evidence — including native pleas for Espinosa to visit their lands because children were dying of smallpox — that indicates it was only or primarily children who were suffering from smallpox.

46. In his comments regarding the Pima Bajo of Onabas (Oera), Obregon implied that the Pima Bajo women nursed their children for a minimum of 2 years (Hammond and Rey 1928: 161).

47. Velasco says little in his letter that would indicate the older missions near San Felipe and along the Rio Mocorito suffered greatly during the epidemic. The priest commented that those near the Villa prayed and went to confession, hoping to escape the **cocoliztli**. The inhabitants of the Rio Mocorito also "were quiet", although Velasco notes that during the summer, 2 pueblos and part of a third were abandoned and the inhabitants fled their missions for the mountains, along with natives from pueblos on the Rio Lopoche. Those who fled were convinced to return to their pueblos. It is conceivable that this exodus occurred at the time that the Nio, Ocoroni, and Guasave were affected by the epidemic. It should be noted that while some Ocoroni, Nio, and Guasave suffered during the epidemic of 1593, it was not until 1601 that the bulk of each population was integrated into the mission system, thus facilitating exposure to disease. Also, presumably those Guasave and Ocoroni who suffered in 1593, acquired a specific immunity to either measles or smallpox, not both diseases. This may explain Velasco's comment that a good number of Old Christians among the Guasave died during the epidemic of 1601 ("**Murieron tambien en la sobre dicha enfermedad golpe de Cristianos antiguos...**")(AGN 1601: 116).

48. **Excirpelas** is an acute febrile disease caused by hemolytic streptococcus and produces an inflammation of the skin and subcutaneous tissue.

49. Events surrounding the murder of a Tehueco Indian by Nacabeba's nephew in 1598 (ACN 1598) indicate the Tehueco and other inhabitants of the Rio Fuerte frequently visited other Cahita and Tahue speakers along the Rio Sinaloa and Rio Mocerito. It is likely, therefore, that one or more diseases spread to the Ahome, Tehueco, and Cinaloa in 1601-02. It is instructive to note that in 1534, Diego de Guzman's expedition found the Cinaloa Indians living in 20-25 towns with 100 to 200-300 houses (Hedrick and Riley 1976: 41). Many of these villages apparently were still in existence and were well populated in 1594, when Father Tapia visited the Cinaloa (Perez de Ribas 1944: I, 174-175). As a consequence of the epidemic of 1601, and perhaps that of 1593, there were only around 1000 Cinaloa families in 1606 (Perez de Ribas 1944: I, 344). In 1605-1606, the Tehueco were reduced from 3 to 2 pueblos by the Jesuits (Perez de Ribas 1944: I, 313), presumably in response to significant population reductions during the epidemic of 1601-02. Interestingly, shortly after Father Pedro Mendez began visiting the Tehueco, in 1605, he baptized 26 elderly people, some of whom were blind, others who were deformed, several who were sick, and others who were emaciated (Perez de Ribas 1944: I, 313). Additionally, Sauer (1935: 19) noted that Captain Hurdaide reported a ratio of only 2 women and children for each warrior in the Tehueco and Cinaloa villages that Hurdaide visited in 1605. Although Sauer believed Hurdaide made no attempt to count small children, it seems more likely that the Tehueco and Cinaloa lost many family members as a consequence of disease.

50. Although the Jesuits did not establish a mission in the Culiacan Valley, priests occasionally visited the Tahue. Also, priests often spent a few days hearing confessions and saying mass at San Miguel de Culiacan and surrounding settlements while travelling to and from San Felipe along the coast road.

51. **"... mas sanos en el cuerpo, pero mui trabajosos en el alma."**

52. The Acaxee revolt and other native uprisings will be discussed in greater detail in chapter 7.

53. In 1601, there were upwards of 80 Spaniards and an unknown number of black slaves and Indians from the south working in and about the **Real** of Topia and in the mines of San Andres, San Hipolito, San Gregorio, and Las Virginies (Meacham 1969: 60-63).

54. Although the Franciscans established a mission at Topia as early as ca. 1565, the Franciscans worked primarily with Spaniards and Tarascan mine workers; the friars apparently ignored for the most part the large Acaxee population of the region. During lent of 1592, Father Tapia visited the **Real** of Topia and established a Christian Acaxee settlement (Santa Cruz del Valle) in the Valley of Topia. In 1594 and 1597 two other Jesuits worked briefly with the Acaxee. In 1598, Father Hernando de Santaren established a permanent mission at Topia, which was under the general jurisdiction of the Jesuit superior in Durango. In February and later December, 1600, Santaren and Captain Diego de Avila made an **entrada** into the San Andres mining district and convinced 1724 Acaxee to settle in 10 pueblos (DHM 1600; McShane 1938). After the arrival of Father Andres Tutino — just prior to the Acaxee Revolt — Santaren began a mission near the Sierra de Carantapa

(Alegre 1958: 74-94, 499-512, 542-549; DHM 1600; DHM 1601; Perez de Ribas 1944: III, 13-22).

55. Araya does not specifically mention individuals dying of disease. He notes only that some Laguneros died after being baptized or receiving the sacraments (DHM 1601: 69).

56. The *anua* of 1604 relates that there were many children recently born that died after receiving holy baptism (AGN 1604: 139-140). In 1603-04, crop failures and increased outbreaks of disease apparently prompted many Guasave, Ocoroni, and Bacoburito converts to abandon their mission settlements. After burning their churches, some of the rebels fled to the mountains along the headwaters of the Rio Sinaloa. Another group of 40 fled to the Mayo, and after being turned away, continued on to the Yaqui. While these events were unfolding, 4 Tehueco Indians who had accompanied Captain Hurdaide to Mexico deserted the Captain in Zacatecas and then killed several Indians along the Rio Culiacan (AGN 1604; Dunne 1940; Perez de Ribas 1944: I).

57. Although Perez de Ribas did not mention large numbers of Suaqui and Ahome suffering in 1606-07, he did allude to the epidemic having spread to the lower Rio Fuerte. Specifically, Perez de Ribas noted that many Batucaris were castigated by God with sickness after the Batucaris fled their mission settlement for the *monte*. The Batucaris, like the Ahome, apparently were Guasave-speakers. Perez de Ribas noted that the Batucaris were hunter-gatherers who exploited the coastline 4 leagues from the pueblo of Ahome. Some 300 Batucaris were convinced by Perez de Ribas to settle close to the Ahome prior to the epidemic of 1606-07. (Perez de Ribas 1944: I, 289). Also, in his discussion of the founding of missions among the Suaqui, Perez de Ribas implied that the number of Suaqui *vecinos* or heads-of-households declined from 1000 to 800 between ca. 1605-07 (Perez de Ribas 1944: I, 305-306).

58. The two priests took up their new residences in November, 1606 (Alegre 1958: 120).

59. In ca. 1606 a delegation of Mayo caciques travelled to the Rio Fuerte to observe the Jesuits at work among the Suaqui (Perez de Ribas 1944: I, 310). Reportedly, the Mayo were favorably impressed, and that same year, Father Juan Bautista de Velasco returned the cacique's visit (AGN 1613: 169). The Mayo maintained contacts with the Jesuits during the following years until they finally were sent a priest in 1614. After 40 Ocoroni families fled their missions and settled among the Yaqui, in 1604, the Yaqui also came in contact with the Jesuits and Captain Hurdaide.

60. The Baciroa and Conicari were two of many groups that visited Father Mendez, as recounted in a letter quoted by Perez de Ribas (1944: I, 312). Similarly, during one of his early visits to the Cinaloa, Villalta was visited by a principal chief of the Zoe who asked for baptism for his people (Perez de Ribas 1944: I, 343).

61. Perez de Ribas (1944: III, 29-30, 48-49, 44-45, 55-56, 82-84) copied letters from Fathers Ayerve, Cueto, Acevedo, and Santaren that mention

outbreaks of disease among the Acaxee and Xixime.

62. Alegre (1958: 105-106), apparently relying on the *anua* of 1604, indicated that an epidemic of smallpox caused great suffering among the Tepehuan, particularly in the *partido* of Zape. The epidemic and its consequences also were discussed by Perez de Ribas (1944: III, 147-149).

63. Scholars have disagreed over the timing of Fonte's *entrada* (see Decorme 1941: II, 249; Dunne 1944:94; Sheridan and Naylor 1979: 13, f. 1; Spicer 1962: 25), with some suggesting that the *entrada* occurred as late as December, 1610, or January, 1611. However, several important details often have been overlooked that indicate Fonte's *entrada* occurred in 1607. Specifically, in a letter describing the *entrada*, Fonte noted that afterward he travelled to Durango to speak with the Governor of Nueva Vizcaya about securing the Viceroy's approval of a permanent mission among the Tarahumara. Fonte further noted that the Governor assured him that he would speak to the Viceroy (Perez de Ribas 1944: III, 159-161). Fonte's trip to Durango and his meeting with Governor Urdinola were recounted in another of Fonte's letters, dated 22 April 1608 (Alegre 1958: 169-170). Fonte's *entrada* among the Tarahumara must, therefore, have occurred during the winter of 1607.

64. The mission of Parras also expanded during the years prior to the epidemic of 1607. After the founding of the mission of Santa Maria de las Parras, in 1598, Father Augustin de Espinosa was joined by Father Francisco de Arista. By 1600, the two Jesuits were attending to the needs of some 1600 neophytes at Parras and its *visitas* of San Jeronimo and Santo Tomas. In 1601, Espinosa and Arista organized the missions of San Pedro and Santa Ana, each with *barrios* of Zacateco and Irritila converts. Although the Parras mission was dealt a momentary setback in 1602 with the death of Father Espinosa, the following year (1603-04) four priests were sent north to assist Arista. Within a year of their arrival, a new mission was founded at San Ignacio, and two *visitas* (San Geronimo and San Tomas) were established in the *partido* of San Pedro. The Jesuits also began regular visits to other smaller native settlements in the Laguna region (e.g. Santiago and San Nicolas), and by 1604, over 5000 natives were under Jesuit care. The number of converts continued to grow during the years leading up to the epidemic, and included several hundred natives who abandoned their homes in the Sierra de las Parras (Dunne 1944; Perez de Ribas 1944: III, 276-283).

65. The fact that the Jesuits worked day and night during disease episodes, caring for the sick, and often "curing" those who were ill, was proof for many that the priests and baptism were benevolent. There was no escaping the fact, however, that once a group accepted baptism and priests, they often were exposed to diseases that spread rapidly through the mission system. The dilemma that native peoples faced with regard to the acceptance of priests and disease is examined in greater detail in chapter 7.

66. There may have been many Acaxee and Xixime settlements that actually were infected with smallpox. Perez de Ribas indicated that the Jesuits learned of the outbreak of smallpox at the Acaxee village more or less by accident. It was only after the priests learned that the inhabitants of the village were preparing to join the Xixime revolt that the village was visited

and smallpox discovered (Perez de Ribas 1944: I, 95).

67. The Tehueco uprising occurred after Father Pedro Mendez overturned and destroyed an idol that apparently was secretly worshipped by some Tehueco. After Mendez's actions, one or more **hechiceros** began telling the people that they would be decimated by a plague if they did not abandon Mendez and their missions. With the help of some Tepahues, a group of Tehueco attempted to murder Mendez. Subsequently, the rebels set fire to a church and fled to the sierras. In 1612, Captain Hurdaide took 40 Spaniards and several thousand allies and captured the rebels along the headwaters of the Rio Mayo (AGN 1612; Dunne 1940: 133-139; Perez de Ribas 1944: I, 320-331).

68. Perez de Ribas did not explicitly state that this outbreak of smallpox occurred in 1612. He did note, however, that the fort of Montesclaros was in existence at the time. Perez de Ribas also followed his discussion of the epidemic with a brief account of Jesuit contacts with the Huites (Perez de Ribas 1944: I, 350). The fort of Montesclaros was completed in 1610 (AGN 1610; Dunne 1940: 129-139; Perez de Ribas 1944: I, 318-320), while Jesuit contacts with the Huites were initiated in 1612 (AGN 1612).

69. Typhus may have been carried north to Sinaloa along the coast road from Jalisco, where, in 1610-11, many natives died from a "great sickness" (Tello 1891: 769). The disease in fact may have been introduced by the Bishop of Guadalajara, Juan del Valle. In 1611, the Bishop travelled to Sinaloa, which was in the Bishop's diocese, to administer the sacrament of confirmation to some 8,000 Jesuit converts. The Bishop took ill and died during his visit- after visiting the Tehueco and while on his way back to San Felipe (Perez de Ribas 1944: I, 317).

70. As noted in chapter 4, typhus, dysentery, and typhoid have, historically, tended to occur together. All three diseases thrive among people in poverty and poor general health.

71. Although Decorme (1941: II, 33-34) stated that the mission of Parras suffered from **cocoliztli** and **viruelas** in (1612), Decorme actually seems to be referring to the epidemic of 1607-08. Alegre (1958: 237-238) noted only that there was a Tepehuan cacique (Turumanda) who suffered in 1612-13 from what may have been influenza (**una flexion a la garganta y al pecho**).

72. This trip to the land of the Nebomes is discussed in a letter by Hurdaide which appears in several sources (AGN 1614a, AGN 1614b, Alegre 1958: 253-254 and Perez de Ribas 1944: II, 14-15).

73. Alegre (1958: 255) has a different version of Mendez's letter, which states that during the first 15 days Mendez baptized 3100 parvulos and 500 adults, not counting another 500 old men and women who were in danger of dying, and who after being baptized, died ("**en brebe, a gozar de nuestro Senor.**"). Although Dunne (1940: 148) suggested that Mendez baptized such a large number of adults because the latter were sufficiently instructed in the Faith, it is more likely that Mendez baptized them because they were ill.

74. Although Dunne (1940: 188) has attributed to Perez de Ribas the statement that the Nebomes who came south in 1615 were from Nuri, Perez

de Ribas (1944: II, 34) noted only that the Nebomes lived 80 leagues from the Villa of San Felipe. As early as 1610, the Nebomes, along with their neighbors at Nuri, visited San Felipe, professing a desire for priests and friendly relations with Captain Hurdaide (Dunne 1940: 257, f. 5; AGN 1614a). Subsequently, the Nebomes occasionally were visited by kinsmen from Bamoa — descendants of those who left Sonora in the company of Cabeza de Vaca — who reportedly encouraged the Nebomes to accept Christianity (Perez de Ribas 1944: I, 253-256). One indication of the close ties between the Pima of Bamoa and the Nebome is the fact that, a Bamoa came south with the first group of Nebome in January, teaching the Nebomes along the way the rudiments of Christianity (AGN 1615a). Of course, the Bamoaans also may have shared disease agents with their northern kinsmen.

75. The *anua* of 1615 contains a letter of Father Diego de Guzman that recounts the Nebome exodus (AGN 1615; Alegre 1958: 563-569). Guzman's letter was copied and included in the *Memoryas* (AGN 1615b) and is mistakenly represented as being written in 1629, rather than 1615. Late in 1616, a third group of Nebomes came to Bamoa, but because of a shortage of land, this last group had to return to their homes along the middle Yaqui (AGN 1616).

76. Perez de Ribas stated that the 3 adults died "...con el trabajo del camino".

77. Like other Spaniards (Gibson 1964: 448), including fellow Jesuits (AGN 1601: 114), Perez de Ribas apparently used the term leprous as a referent for lesions caused by diseases such as smallpox or typhus. It is possible, however, that Perez de Ribas was in fact referring to Leprosy — a disease that was common among Spaniards, who brought it to the New World shortly after the Conquest (Rogers and Muir 1946).

78. In 1608, the Yaqui fought the first of several battles with Captain Hurdaide (Perez de Ribas 1944: II; Spicer 1980). After soundly defeating the Captain, the Yaqui mysteriously sued for peace in 1609. The following year, a Yaqui delegation of 150 came to San Felipe to formally agree to peace. Afterwards, the Yaqui continued to visit the Jesuits, pledging peace and professing an interest in baptism (e.g. AGN 1615: 209).

79. La Cruz must have been told that there were many natives in the foothills in danger of dying, since the Jesuits were governed by strict rules and regulations regarding baptism of gentiles and the founding of new missions (Polzer 1972, 1976).

80. The Tepehuan revolt was probably the most serious native uprising during the colonial period in northern New Spain. The revolt will be examined in chapter 7.

81. The *anua* relates one instance where a Nebome happened upon an Indian woman of an "enemy nation" who was sick and on the verge of death. The Nebome took the woman, who apparently was Eudeve-Opata, to an unnamed priest who was working at the time among the Ayvino. The priest baptized the woman and in a few days she died (AGN 1620: 257). Another instance is given of a gentile woman who was laying sick in front of her house, and

who was found by the same priest. The woman agreed to be baptized and died within fifteen minutes (AGN 1620: 256-257). Although there is no indication of what these women died from, the **anua** contains several accounts of natives in Sinaloa that suffered in 1620 from "vicious" and "great" fevers (AGN 1620: 255, 257).

82. The extent of the epidemic is unclear, in part, because many priests apparently were too busy to compile reports regarding the status of the missions. Accordingly, Father Juan Lorenzo, who compiled the **anua** of 1624, noted that he did not receive reports from superiors in Sinaloa and Topia/San Andres for that year (AGN 1624: 123).

83. A census compiled in 1624 (AGN 1624a) indicates there were 19,750 converts in the **partidos** of Onabas and Tecoripa. It is unclear how many of these converts were Eudeve (Ayvinos) and Sisibotari Opata.

84. The **anua** of 1623 talks at length about the "Hures" and how they had shown a great desire for baptism, even though priests had not yet visited their lands or baptized their sons. The Hures were so anxious to have priests that they already had prepared a residence and place for a priest to reside and celebrate mass. The **anua** went on to relate how 4 Nebomes who travelled to Ures to acquire maize shot a cacique at Ures, leaving the cacique seriously wounded. Of particular significance is the observation that, even though there were many relatives of the 4 "killers" in Ures ("**y aunque havia alli muchos parientes de los matadores**"), the people of Ures decided not to seek revenge for their wounded cacique, and instead sent word to a Jesuit among the Ayvino relating what happened (AGN 1623: 95-96). It is clear from this passage that the Ures had regular contacts with the Nebomes — their kinsman — and the Jesuits.

85. In June, 1622, Fathers Basilio and Olinano made the first formal visit to the Ayvino pueblos of Matapa, Teopa, and Aybine. The priests baptized 6 adults who were sick and 402 infants, as instructed by their superior (AGN 1622). The following year the Ayvinos were visited by Captain Hurdaide, who encouraged the natives to maintain their desire to have priests. In a letter recounting his visit (AGN 1623a), Hurdaide noted that Father Olinano, who was working among the Nebome, continued to visit the Ayvinos, and the latter often visited Olinano. The **anua** of 1623 noted that during one such visit, in 1623, a group of Ayvinos were attacked by a band of Nebomes (AGN 1623: 95). From the **anua** of 1620 (AGN 1620: 254) we learn that the Batuco, another Eudeve-Opata group, also had initiated contacts with the Jesuits, as did the Sisibotari Opata of the Rio Sahuaripa. In 1620, the cacique of the Sahuaripa Opata, "Gran Sisibotari" actually travelled all the way to San Felipe, together with a delegation of Batuco caciques, to request baptism. The Jesuits responded in kind by having an unidentified priest visit the Sisibotari, apparently baptizing some children or adults that he found in danger of dying (AGN 1627: 211). The priest may have accompanied a pack train that Captain Hurdaide sent to Sahuaripa to secure foodstuffs (AGN 1622a). Again in 1621, "Gran Sisibotari" and neighboring caciques made the long journey to San Felipe, this time bringing a group of children that were left with the Jesuits for instruction (AGN 1621: 284).

86. The **anua** of 1621 indicates that many natives along the upper Rio Mayo

died within 15 minutes, and others in a day or two after receiving the waters of baptism (AGN 1621: 280). Apparently as a consequence of the spread of disease, a large group of Baciroa and Tehatas left the Sierras to settle in the recently founded missions at Conicari and Tepahue (AGN 1621: 280).

87. Godinez made his **entrada** after 1620 (Dunne 1940: 174)

88. In 1614 there were 13 priests working in all the west coast missions (Dunne 1940: 220). In 1626, there were 27 Jesuits working among the natives in Sinaioa and Sonora (AGN 1626: 140).

89. In 1626, a serious uprising occurred among the Nebome that led to the destruction of a number of churches and the wounding of Father Bandersipe (AGN 1626: 150; AGN 1626a).

90. In 1626, Father Julio Pascual began a permanent mission among the Chinipa and their neighbors, the Varohio and Guazaparis (Bannon 1939: Perez de Ribas 1944: I, 365-373; II, 30-54). That same year, a permanent mission was founded among the Sisibotari Opata (AGN 1628b). Two years later, permanent missions were begun among the Ayvinos and Batucos (AGN 1630a; Alegre 1958: 185; Bannon 1955; Perez de Ribas 1944: II).

91. Although data on baptisms are lacking for some years, there probably were no more than 30,000 baptisms in Sonora during the period from 1627-37. From 1632-37, 11,892 infants and 4,751 adults were baptized in the **Rectorado** of San Ignacio, which encompassed southern Sonora (AGN 1637: 274).

92. It should be noted that while there may not have been any major epidemics during the period from 1626-36, individual communities and mission districts did suffer from disease episodes. In 1630, for example, Father Nicolas de Estrada noted that at Cuencame and other settlements on the eastern flank of the Sierras, the priests worked day and night attending to the many natives who suffered from various "**enfermedades**" (AGN 1630).

93. Contreras was the superior of the Tepehuan mission in 1638. His observations regarding the Tarahumara were part of a letter addressed to Perez de Ribas, who was at the time the Jesuit Provincial. Contreras wrote to Perez de Ribas to secure priests to found a new mission among the Tarahumara, something Perez de Ribas agreed to the following year (Dunne 1948).

94. Prada held the position of Commisary General, and was the highest ranking Franciscan in New Spain. The Friar's comment regarding disease was based on reports from missionaries working in New Mexico.

95. Although the **puntos de anua** of 1639 (AGN 1639a) actually stated that many natives died from "**muy graves accidentes, y maliciosos**", there are numerous other statements in the report regarding natives who were sick that indicate some infectious disease afflicted the inhabitants of the Sonora Valley.

96. **"...estando muchos de ellos de peligro al segundo, o tercer dia de su bautismo se levantaban con fuerzas, y mejoria y por attribuirlo al sagrado bautismo."**

97. Many Opata groups probably suffered from disease during the 1630's, and perhaps during the 1620's. Father Tomas Basilio wrote in 1635 that many Opata (Sonoras, Cumupas, Buasdavas, Tevimas, Mochiras, Nacosuras) and other gentiles beyond the Ayvinos were petitioning for priests. Basilio further commented that it was unfortunate that so many children and infants were dying each day without baptism (AGN 1635: 263). There is also some evidence that, at the time Basilio penned his report, Father Lorenzo de Cardenas found it necessary to baptize many Opata in the upper Sonora Valley. Unfortunately, we know little about Cardenas' **entrada**. In a report from 1646 (AGN 1646: 401), mention is made of many natives in Teuricachi and other **rancherías** north of Arizpe that were baptized by Father Lorenzo de Cardenas. As Bannon (1955: 65-67) has pointed out, Cardenas had to have made his **entrada** up the Rio Sonora prior to 1639. This inference is borne out by a report from 1639 (AGN 1639a) that mentioned many natives in the middle Sonora Valley, below Arizpe, having been "baptized during the **entrada** of the said captain". This statement, when taken together with Pantoja's observation regarding Cardenas, would seem to suggest that Cardenas' **entrada** was made in the company of Captain Pedro Perea. Whomever Cardenas was with, and whenever he made his **entrada**, he probably conducted baptisms in the Sonora Valley because those he baptized were in danger of dying.

98. Perea's colonization scheme and a dispute that grew out of it involving the Jesuits and Franciscans were the subject of a detailed **Relacion** (AHH 1666) that apparently was written by Father Pedro Pantoja between 1666-1684 (Polzer 1972a: 259). The **Relacion** has been translated into English and discussed in detail by Polzer (1972a). Additional information also can be found in Schroeder (1956).

99. The **Relacion** indicated that Perea became ill after he attempted to enter Hymeris territory, presumably to the southeast of Magdalena. The Hymeris, perhaps forewarned by the Jesuits, forced Perea to retreat to Toapa. While Perea was en route to Toapa he became seriously ill. The **Relacion** states that "About this time the Father Visitor [Pedro Pantoja] suffered from exhaustion from administering to many Indians who were molested by a serious disease that was running through the Valley" ("**A las sazon adolecio el Pe. Visitador cansado de la administracion de tantos Yndios, quienes molesto un penoso achaque, que corrio en el valle**") (AHH 1666; Polzer 1972a: 270)].

100. The **Relacion** states with reference to Perea and his illness **"...que queria hablar no se entendia ni se explicava..."**, and **"...aunque entendia bien lo que se le hablava el no podia explicarse como desean..."** (AHH 1666).

101. **"...avia aora tres anos an se muerto dos frailes..."**.

102. **"...que de ordinario arrasa las poblaciones, llevandon pueblos enteros a la sepultura, que es la causa de aver se minorado con lamentables ruinas la muchedumbre de indios, que tenian estas provincias"** (AGN 1649: 97-98).

103. Accounts of more recent epidemics as well as historical materials from the seventeenth and eighteenth centuries often mention or allude to smallpox victims who were disfigured with facial scars (Dixon 1962; Schroeder 1972: 54; Treutlein 1949: 163). That it was primarily Tarahumara youth who suffered is not surprising, given that most adults probably had acquired an immunity to smallpox. It will be recalled that Fonte found smallpox among the southern Tarahumara in 1607.

104. The annual report or **puntos** from the mission of San Francisco Borja mentioned 2 natives who fled the lands of the Tarahumara and who died from disease 8 days after they reached Onabas. These natives may have been Jova, as the **puntos** also mentioned that there were more than 200 gentile families in the vicinity of Sahuaripa that were petitioning for priests and baptism (AGN 1653a).

105. One child of 15 months reportedly suffered for weeks with stomach pains, vomiting, and diarrhea ("**un accidente del estomago con vomito y camares**") (AGN 1653a: 134).

106. The annual report from the Mayo and Yaqui missions for 1656 (AGN 1656) notes that the epidemic followed a famine, and killed many natives in 12 hours. The **puntos de anua** from the Mission of the Nebomes (AGN 1658) also indicates that during the past few years, and particularly, in 1658, many Nebome converts suffered from one or more unspecified diseases. The **anua** relates how a priest in Onabas came to the aid of a Spaniard who was gravely ill with what appears to have a respiratory infection. The **anua** also notes that 70 adult gentiles from beyond the mission frontier travelled to Onabas to be baptized. Several of these gentiles died, including an old man who was sick with a sore throat and fever. These accounts may be indicative of influenza, which, in 1659, apparently was widespread in Nueva Galicia (Mota Padilla 1924: 360). The years 1655-1657 were a time of serious famine in Sinaloa and Sonora (AGN 1655; AGN 1656; AGN 1657), which would have lowered native resistance to influenza or other highly contagious maladies.

107. A report from the **partido** of Huepac, Banamachi and Senoquipe, written by Father Munoz de Burgos in 1678, notes that 3 people were baptized between 1675-78 at Banamachi: one was a Seri who was over 100 years old who came to Cucurpe and later Banamachi to be baptized, and who subsequently died. The other 2 natives were Himeris. Munoz de Burgos relates that a mother and daughter of the Himeris nation travelled all the way to Banamachi to ask for and receive baptism. On the third day after they were baptized, the daughter died, presumably from disease (AGN 1678b).

108. The historical record from the second half of the seventeenth and eighteenth century is replete with references to epidemics (e.g. AHH 1684; AHH 1729; Treutlein 1949: 219). Indeed, an epidemic in 1692-93 was reported to have destroyed more than a third of the population of Nueva Vizcaya (Hackett 1926: 391, 453). Pfefferkorn (Treutlein 1949: 214-218) noted that by the late 1700's, the most common illnesses in Sonora were inflammatory fever, ague (malaria), and sore throat. Pfefferkorn implied that smallpox was no longer the great killer it once was, and occurred every ten years or so in Sonora. It is apparent from Pfefferkorn's comments regarding the typhus

epidemic of 1765 that many epidemics in the north were still originating in Mesoamerica.

CHAPTER VI

POPULATION REDUCTION: THE IMMEDIATE CONSEQUENCE OF OLD WORLD DISEASE

Although the Jesuit materials clearly indicate that smallpox and other maladies were common during the early historic period, the Jesuits infrequently commented on the total number of Indians that perished during disease episodes¹. It is possible, however, to arrive at a reasonable approximation of the demographic consequences of disease by comparing baptismal and census figures that were compiled by the Jesuits. This strategy is not without critics, as many researchers have questioned the reliability of population figures compiled by early European observers (see Borah 1976: 15; Dobyns 1966: 398). The numbers enumerated by priests and other colonial officials are thought to be the product of unrepresentative census taking, poor bookkeeping, exaggeration, or at best, are said to be incomparable (Cook and Simpson 1948: 19; Johansson 1982). It is not clear, however, whether Europeans in the sixteenth and seventeenth centuries were particularly dishonest or incompetent. Today, as in the past, in addition to human error, there seems to be no shortage of officials that juggle numbers to insure the continuation of vested interest groups.

The demographic data compiled by the Jesuits and other Spaniards — like any source of information — must be critically weighed for truthfulness and accuracy. In doing so it becomes clear that the Jesuits were intelligent

and careful observers (Sauer 1935: 2). The followers of Ignatius Loyola were in fact some of the best educated men of their time. The Jesuits also were a well-disciplined organization, founded on principles of humility and obedience that discouraged even minor distortions of facts and figures (Polzer 1972). Moreover, Jesuit superiors at all levels of the mission hierarchy scrutinized reports from subordinates, and were sufficiently conversant with the facts regarding individual *partidos* or missions to recognize inflated reports of baptisms or mission populations. The use of record books that were regularly examined by superiors also discouraged individual missionaries from exaggeration². This is not to suggest, of course, that some Jesuit reports are without errors or exaggeration. A much more serious problem, however, is the lack of standardization with respect to the reporting of demographic information. Some Jesuit reports, for instance, give figures only on the number of families, while others may give the total population or the number of heads of households. Still other reports refer to "people of confession" or other more indeterminate categories of religious life.

To make use of these disparate data, it is necessary to convert data on family numbers, "people of confession", or other categories into total population. In his seminal analysis of the aboriginal population of northwest Mexico, Sauer (1935) frequently converted Jesuit data by extrapolating from modern (ca. 1920) census data on family size, age distributions, and birth rates in northwest Mexico. While this strategy is defensible and provides valuable insights, Sauer failed to consider the extent to which Old World diseases affected family size, birth rate, and other vital statistics. For instance, Sauer often took Jesuit figures on the number of families in a settlement or valley and multiplied them by 6, thus arriving at a figure on

total population. Although a family size of 6 may have obtained in many areas, aboriginally, the Jesuit figures used by Sauer do not pertain to aboriginal conditions, but were compiled after Old World diseases had greatly reduced family size. Recurrent outbreaks of smallpox and other maladies also raised the infant mortality rates and altered the age/sex distribution of native communities. Because Sauer failed to consider these changes, even though he acknowledged the prevalence of disease, his population estimates often are inaccurate. This will become more apparent as we examine below the long-term impact of Old World diseases.

Population Reduction among the Mission Population as a Whole

There are several figures that were compiled by the Jesuits that provide a general sense of the demographic consequences of disease. In a report from 1638, the Jesuits noted that 100,000 natives had been baptized among the Laguneros, Tepehuan, Acaxee, and Xixime. Of particular significance is their further admission that less than 10% of those who were baptized were still alive in 1638 (AHH 1638; Hackett 1937: 100). A comparison of baptismal and census figures from the west coast missions show a similar, although retarded trend. By 1624, 106,000 natives had been baptized by the Jesuits in northern Sinaloa and southern Sonora (Dunne 1940: 218). Census figures from 1624 show that the mission population numbered only ca. 67,000 (Dunne 1940: 217)³; some 40,000 converts, in effect, died between 1591-1624. Eighteen years later, in 1638, the Jesuits reported that baptisms on the west coast had reached 200,000 (AHH 1638; Hackett 1937: 100). Despite an almost 100% increase in baptisms, the mission population increased by only 47%, to approximately 90,000 (AHH 1638; Hackett 1937: 97, 100).

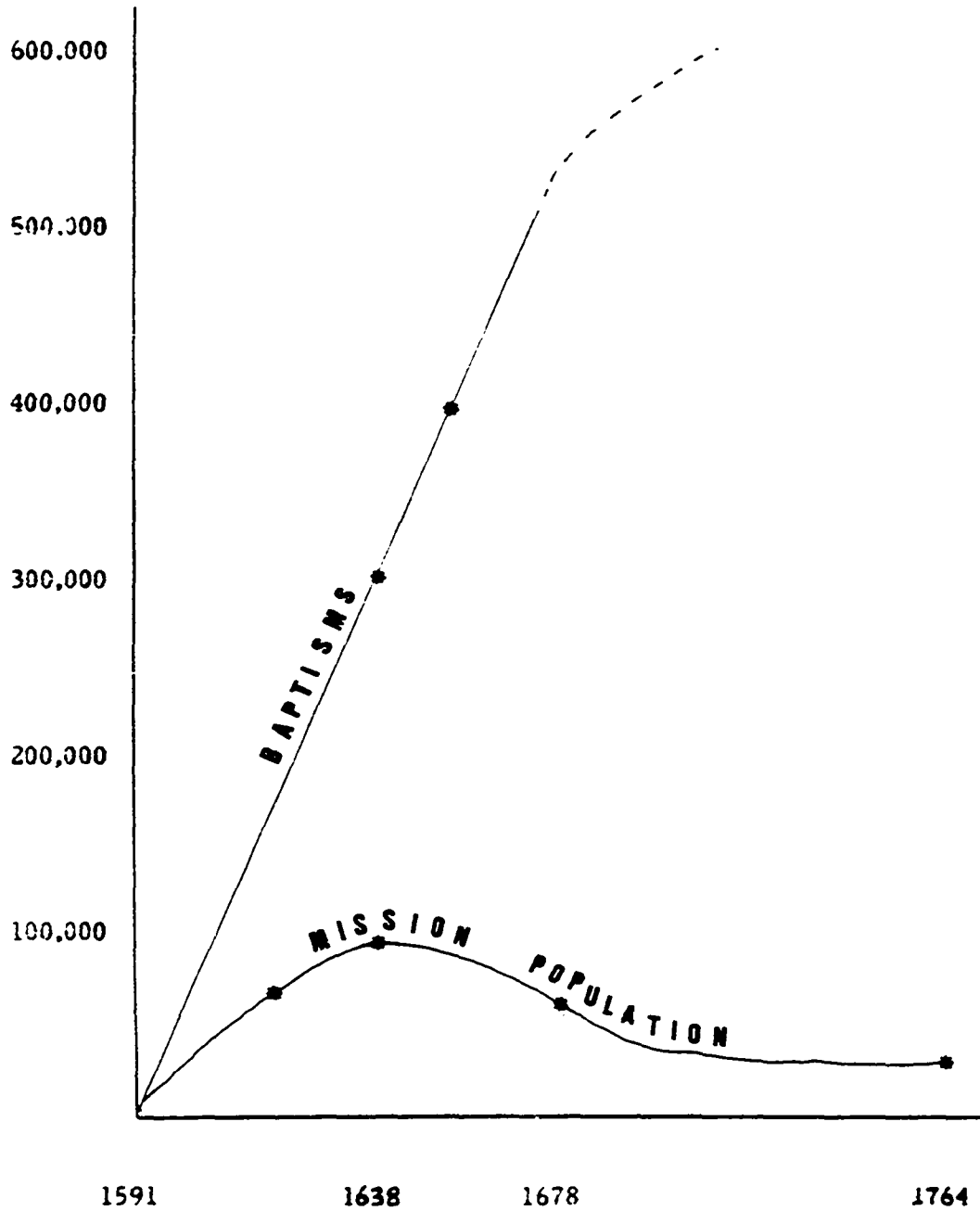


Fig. 14. BAPTISMS AND THE MISSION POPULATION IN NORTHWESTERN NEW SPAIN

Between 1591-1638, then, roughly two-thirds of the mission population of northwest Mexico died, some 200,000 converts in all. After 1636-39, when a new wave of epidemics began in northern New Spain, many more natives perished. The continuing population decline is reflected in a report compiled in 1678 by Father Juan Ortiz Zapata (AGN 1678; DHM 1678). At the time of Zapata's *visita*, the Jesuits had completed the reduction and missionization of all but a few groups in northwest Mexico. Although the number of baptisms had reached well over 500,000⁴, the mission population declined from its previous high of 100,000, in 1638, to around 63,000, in 1678. The significance of this latter figure may be more apparent if it is recalled that, in one decade, from 1614-24, the Jesuits baptized over 60,000 natives along just the Rio Mayo and Rio Yaqui. At the time the Jesuits were expelled from the New World, in 1767, the entire mission population for northwest Mexico had declined to ca. 25,000⁵.

Population Reduction among *Serrano* Groups

If we examine baptismal and census figures for individual groups, we see that the expulsion came long after many native peoples were largely destroyed. Data from the missions in the Sierras and along the eastern slopes of the Great Divide show that the Tepehuan, Laguneros, and Acaxee were among those who lost out to disease during the decades following missionization (Table 1). The Laguneros, for instance, numbered 16,000-20,000 at the time the Jesuits founded the mission of Parras, in 1598 (Perez de Ribas 1944: III, 293). Within a decade of their arrival, the Jesuits baptized almost the entire Laguna population (Perez de Ribas 1944: III, 264). As a consequence of disease, particularly the epidemics of 1607 and 1623-25, the mission population of Parras numbered 1,569 in 1625 (Hackett 1926: 152-159).

TABLE I
POPULATION REDUCTIONS FOR THE LAGUNEROS,
TEPEHUAN, ACAXEE, XIXIME AND TARAHUMARA

| | 1519 | 1597 | 1625 | 1678 | 1725 | 1784 |
|------------|--------|--------|--------|--------|--------|--------|
| Tepehuan | 25,000 | 15,000 | 1,398 | 700 | | |
| Laguneros | 30,000 | 20,000 | 1,569 | | | |
| Acaxee | 25,000 | 20,000 | 1,065 | 800 | | |
| Xixime | 25,000 | 20,000 | 5,380 | 1,500 | | |
| Tarahumara | 50,000 | 45,000 | 35,000 | 13,000 | 20,000 | 32,000 |

SOURCES. 1519: The figures are all estimates, and with the exception of the Tarahumara, reflect the probable loss of upwards of 50% of the population between ca. 1575-1593. 1598: The figures for the Acaxee and Laguneros are from Perez de Ribas (1944: III, 17, 293). Early Jesuit accounts of the Tepehuan (AGN 1597; AGN 1601) and the fact that the Jesuits had almost the same number of priests working in each of the Sierra missions, suggests the Tepehuan were as numerous as the Laguneros and Acaxee. There were presumably more Xixime and Tarahumara, given their limited contacts with Spaniards and disease agents. 1625: Hackett 1937: 152-157. The Tepehuan figure includes 500 Tepehuan who may have been residing in the Santa Barbara district. The figure for the Tepehuan is an estimate based on the assumption that large numbers of Tarahumara along the western border of the Santa Barbara district perished from the many epidemics, including that of 1623-25. 1678: AGN 1678; DHM 1678. The Jesuits surrendered the Lagunero missions to regular clergy in 1646. Although Zapata indicated there were 1,105 Christians in the Tepehuan missions, at least 400 were non-Tepehuan. Similarly, only 800 or so Christians in the Acaxee missions were Acaxee. The Xixime missions included 400 or 500 non-Xixime, including several hundred "reputed Spaniards". With respect to the Tarahumara, Zapata reported some 10,000 under Jesuit care. It is assumed that there were 3,000 at the time who remained to be missionized (see Dunne 1944: 129-136). 1725, 1784: Pennington 1963: 23-24.

Subsequently, the native population of the Laguna region declined further, and in 1646, what remained of the Parras missions were taken over by diocesan clergy⁶.

The rapid diminution of the Laguneros was paralleled by dramatic reductions among the northern Tepehuan and the Acaxee. In 1598, there were 12,000-16,000 Acaxee (Perez de Ribas 1944: III, 17) and probably an equal number of northern Tepehuan⁷. As was the case at Parras, by 1607 the Jesuits had all but completed the reduction and missionization of the Acaxee and northern Tepehuan. However, as a consequence of disease, by 1625, only 1,065 Acaxee and 1,412 Tepehuan remained under Jesuit care⁸ (Hackett 1926: 154-157). At this same time, the Mission of San Andres still had a relatively large Xixime population, numbering 5,380. The Xixime were incorporated into the mission system after the Tepehuan and Acaxee, and so their diminution was retarded⁹. However, there was no escaping the ravages of disease once missionization was completed. Accordingly, in 1678, Father Zapata reported that the 4 Xixime *partidos* of San Andres had only 1900 Christians, including 400 or 500 reputed Spaniards (DHM 1678: 301-306). Paralleling this decline in absolute numbers was a loss of cultural identity, as Zapata noted that many Xixime no longer spoke their own language. The Xixime commonly spoke Nahuatl (DHM 1678: 306), the language which Indian, mestizo, and mulatto mine workers brought from southern Mexico.

By 1678, the Acaxee and northern Tepehuan also had sustained additional losses, in terms of both absolute numbers and cultural identity. In his report from 1678 (AGN 1678: DHM 1678), Zapata noted that there were only 816 Acaxee in the 3 *partidos* of the Mission of Topia¹⁰. As was the case with the Xixime, Zapata found that many Acaxee had adopted the

language of foreigners, conversing in Nahuatl more than their own language (DHM 1678: 412-419). Similarly, Zapata's report (AGN 1678) indicates that the once populous Tepehuan numbered between 500-1,000, and were rapidly losing their language and cultural identity¹¹ (DHM 1678: 310-315).

It is apparent that, by 1678, the Lagumeros, Tepehuan, Acaxee, and Xixime were too few in numbers to survive as distinct cultural entities. Not all serrano groups, however, fared so poorly. The Tarahumara, in particular, survived many of the dislocations of the early historic period. Indeed, as late as 1944, there were approximately 44,000 Tarahumara, many of whom reportedly were living much as their ancestor's had (Pennington 1963: 23-24). It is wrong, however, to infer that the Tarahumara were not greatly affected by Old World diseases, and that their population has remained relatively stable since the seventeenth century (Pennington 1963: 23-24; 1983: 277). These conclusions are contradicted by evidence that the southern Tarahumara weathered at least one bout with smallpox prior to 1607. We also have seen that in 1638, 1645-47, 1652, and throughout the 1660's, thousands of Tarahumara in mission and non-mission settlements along the Rio San Pedro, Conchos, and Florido perished from Old World diseases (AGN 1638; AGN 1647; DHM 1645; DHM 1652; DHM 1662; DHM 1668; DHM 1669). Like other native groups, the Tarahumara also suffered during the late seventeenth and eighteenth centuries from smallpox and other maladies (e.g. Sheridan and Naylor 1979: 36-37, 83).

How is it then that the Tarahumara survived when others did not? The answer is that many the Tarahumara withdrew to the uplands and inhospitable barrancas of southwestern Chihuahua during the closing decades of the sixteenth and early seventeenth century (see Pennington 1983). This

migration was coincident with the abandonment of the Rio Papigochi Valley; the region about San Bernabe, Cusihiuriachic and Coyachi; and the basins of the Rio Santa Isabel, Rio Satevo and the Rio San Pedro. Aboriginally, each of these areas had good-sized pueblos, some of which relied on irrigation agriculture, as reported by Ibarra (Mecham 1927: 81) and later Gaspar de Contreras (AGN 1638). By forsaking their lowland villages for the uplands of southwestern Chihuahua, the Tarahumara were able to minimize their contacts with Spaniards and other Indians that were a source of disease agents. Accordingly, after a precipitous decline that left ca. 13,000 Tarahumara in 1678, the population began to rebound, tripling in size by the turn of the twentieth century.

Population Reduction along the Pacific Slopes of the Sierras

With few exceptions, native populations along the pacific slopes of the Sierras experienced much the same decline as occurred in the Sierras among groups such as the Tepehuan or Laguneros. As a consequence of the epidemics of 1593 and 1601-02, the Cahita proper of the Rio Sinaloa and the Rio Ocoroni declined from around 15,000 at the time of missionization to ca. 4,000 in 1604 (Table 2). Subsequently, the Cahita and their Ocoroni neighbors experienced additional losses, save for a brief period between 1624-1638. It will be recalled that there were few major epidemics during the period 1625-38. The *anuas* from these years also indicate that the period was one of good harvests (e.g. AGN 1626: 317; AGN 1628: 340-341). A low incidence of disease and famine undoubtedly increased fertility, while at the same time lowering the infant mortality rate. The recovery that the Cahita proper enjoyed was cut short, however, after a new wave of epidemics and famine began in ca. 1638. This is apparent from figures that show that the

Cahita proper declined to 1,289 by 1678. At this time, Father Zapata commented that many Cahita spoke Nahuatl and Spanish. Apparently the adoption of these languages was part of a much larger process of assimilation that involved intermarriage of Cahita, Tarascans, Mexica, Blacks, and Spaniards. Interestingly, between 1678-1720, the Cahita population more than doubled, perhaps, in part, because the gene pool was enlarged by the addition of traits that promoted resistance to disease.

Demographic data for the Guasave and the Cahita of the Rio Fuerte (Suaqui, Tehueco, Cinaloa) indicate that both groups followed much the same path as the Cahita proper (Tables 3, 4). It was not until after 1720, however, that the Guasave, Suaqui, Tehueco, and Cinaloa rebounded from more than a century of population decline. This retarded pattern of decline and recovery also characterizes population trends for the Mayo and Yaqui (Tables 5, 6); the latter also were affected by Old World diseases at a later date, as compared with the Cahita proper. From a population of around 30,000-35,000 at the time of missionization, the Yaqui and Mayo declined to ca. 6,000 in 1720. Thereafter, the Yaqui and apparently the Mayo experienced a significant recovery. Several sources indicate that there were approximately 20,000 Yaqui in 1764. While census data from ca. 1764 indicate that the Mayo missions had only 3,000 or so residents, there apparently were thousands of Mayo working at the time in numerous mines that recently had been founded in Sonora¹².

The dramatic increase in population which the Yaqui and Mayo experienced after 1720 were more the exception than the rule. This much is apparent from a consideration of demographic trends for the Nebome and the various Opata "tribes", including those of the middle Sonora Valley (Tables 7,

TABLE 2
POPULATION DECLINE AMONG THE CAHITA
PROPER AND THE OCORONI

| | 1519 | 1604 | 1624 | 1638 | 1656 | 1678 | 1720 | 1764 |
|--------------|---------------|--------------|--------------|--------------|-----------|--------------|--------------|--------------|
| Baboria | | | 1,050 | | | | | |
| San Felipe | | | | | 646 | 600 | 585 | 1,750 |
| Nio | | | | | 288 | 308 | 593 | 800 |
| Bama | | | 1,300 | | 429 | 240 | 250 | 522 |
| Cuiburi | | | | | 34 | | | |
| Ocoroni | | | | | 286 | 150 | 70 | 636 |
| TOTAL | 15,000 | 4,000 | 2,350 | 2,325 | 20 | 1,298 | 1,498 | 3,708 |

SOURCES. 1519: Sauer 1935: 19. 1604: The Cahita proper and the Ocoroni were devastated during the epidemics of 1593 and 1601-02. Perez de Ribas (1944: II, 36) noted that more than 6,000 children died prior to 1600. The *anua* of 1602 (AGN 1602: 129-132) notes that there were 600 married men among the Guasave, and that the Guasave mission was the biggest of the four Jesuit *partidos* in Sinaloa. These statements imply that there were less than ca. 2,500 natives in each of the 2 *partidos* of the Cahita proper and the Ocoroni. 1624: AGN 1624a. 1638: The figures for 1638 are based on the "Fragmental History" (AGN 1638a; Sauer 1935: 14), which internal evidence indicates was written in ca. 1638. The "History" indicates there were 10 pueblos on the Sinaloa River with a total of 1,550 families (*vecinos*). Two of these pueblos were Guasave settlements, Tamazula and Guasave itself. In 1656, there were 1463 Guasave and Tamazulans as compared with 1684 Cahita proper. If it is assumed that the same proportions held in 1638, then half of the 1,550 *vecinos* were Cahita proper and Ocoroni. Because of the prevalence of disease and a high mortality rate, these 775 families probably averaged 3 members, thus giving a total population of 2325. 1656: The figures are based on a census of "people of confession" (AGN 1656), which apparently included all individuals over the age of 13. The percentage of the population under 13 was estimated on the basis of information supplied in a contemporary document (AGN 1657a), wherein it is noted that the Jesuits distributed 6,000 rations a day in the two Yaqui missions of Rarum and Potam. Presumably the rations were distributed among the total population of both districts. If you subtract the number of confessants (4,376) listed in the *Catalogo* for Raum and Potam from 6,000, the result, 1,624, is 27% of the total population 1678: AGN 1678, DHM 1678. The figure for San Felipe is half of what Zapata reported. Zapata noted that many of the 1200 Christians in the Villa were mestizos and mulattoes. 1720: The figures listed are based on reports copied by Alegre (1959: 492) which give the number of families in various missions. Because Zapata and later Tamaron y Romeral commented on the many "mixed bloods" in San Felipe, it was assumed that in 1720, only half the 300 families in the Villa were Cahita proper. Reports from 13 different settlements in the Opateria indicate the average family size in Sonora was 3.9 (see Alegre 1959: 41-518). This figure was used as a multiplier to arrive at total population figures for the Cahita proper. 1764: Tamaron y Romeral 1937.

TABLE 3
POPULATION DECLINE AMONG THE CAHITA
OF THE RIO FUERTE

| | 1519 | 1605 | 1624 | 1656 | 1678 | 1720 | 1764 |
|------------|--------|--------|--------|--------|-------|-------|-------|
| SUAQUI | | 5,000 | 3,801 | | | | 660 |
| S.Miguel | | | | 1,323 | 674 | 542 | 1,006 |
| Mochicahui | | | | 1,111 | 559 | 515 | |
| TEHUECO | | 6,000 | 2,567 | | | | |
| Tehueco | | | | 724 | 782 | 270 | 612 |
| Charai | | | | 649 | 636 | 577 | 970 |
| Sivirioja | | | | | 624 | 472 | 700 |
| CINALOA | | 8,000 | 6,570 | | | | |
| Toro | | | | 927 | 360 | 105 | 216 |
| Vaca | | | | 1,116 | 584 | 234 | 145 |
| TOTAL | 40,000 | 19,000 | 12,938 | 16,574 | 4,219 | 2,715 | 4,309 |

SOURCES. 1519: Sauer (1935: 18-19). 1605: Perez de Ribas (1944: I, 302) noted that in 1605 there were approximately 1,000 Suaqui families. If each family, on average, lost one or two members during the epidemic of 1601-02, the total population for the Suaqui may have numbered no more than 5,000. Perez de Ribas (1944: I, 33) noted that, as late as 1611-12, there were still 800-1,000 Tehueco families. A figure of 6,000 is suggested for the Tehueco in 1605, given Tehueco losses during the epidemics of 1606-07 and 1611. With respect to the Cinaloa, Perez de Ribas (1944: I, 346) noted that almost 1,000 Cinaloa families were under Jesuit tutelage in 1605-06. It is assumed that there were another 1,000 families that remained to be converted, many of whom apparently died during the epidemic of 1606-07. It is estimated that there were approximately 8,000 Cinaloa in 1605. 1624: AGN 1624a. The figures for Suaqui and Ahome in the census are lumped together, and placed at 5,068. If it is assumed that the proportion of Ahome to Suaqui in 1624 was the same as in 1656, when there were three times as many Suaqui confessants as there were Ahome, then it can be concluded that there were 3,801 Suaqui in 1624. 1656: These figures are based on a census of "people of confession" (AGN 1656), which included all individuals over the age of 13. The percentage of the population under 13 was estimated at 27% on the bases of information supplied by a contemporary document (see table 6). 1678: AGN 1678, DHM 1678. Zapata indicates that the Suaqui were merging at the time with Ahome. 1720: The figures listed are based on reports copied by Alegre (1959: 491-492) which give the number of families in various missions. Reports from the Opateria indicate the average family size in Sonora was 3.9 (see Alegre 1959: 41-518). This figure was used as a multiplier to arrive at total population figures for the Cahita of the Rio Fuerte. Of the 270 natives at Tehueco, and the 105 residents of Toro, an unknown number were Spaniards. 1764: Tamaron y Romeral 1937: 238-239.

TABLE 4
POPULATION DECLINE AMONG THE GUASAVE
AND AHOME

| | 1519 | 1598 | 1624 | 1656 | 1678 | 1720 | 1764 |
|--------------|---------------|---------------|--------------|--------------|--------------|--------------|--------------|
| Guasave | | 10,000 | 3,000 | 910 | 531 | 390 | 651 |
| Tamazula | | | | 553 | 265 | 320 | 589 |
| Ahome | | 5,000 | 1,261 | 823 | 626 | 569 | 501 |
| TOTAL | 20,000 | 15,000 | 4,261 | 2,286 | 1,422 | 1,279 | 1,741 |

SOURCES. 1519: A figure of 20,000 is suggested by evidence that there were 15,000 Guasave and Ahome in 1598, and that many Guasave died during epidemic of 1593. 1598: Perez de Ribas (1944: I, 202) noted that in ca. 1598 there were 5 Guasave pueblos with 2,000 *vecinos*. About this same time there were 1,000 Ahome families (Perez de Ribas 1944: I, 278), giving a total population of around 5,000. 1624: AGN 1624a. 1656: The figures are based on a census of "people of confession" (AGN 1656), which included all individuals over the age of 13. The percentage of the population under 13 was estimated on the basis of information supplied in a contemporary document (AGN 1657a), wherein it is noted that the Jesuits distributed 6,000 rations a day in the two Yaqui missions of Rarum and Potam. Presumably the rations were distributed among the total population of both districts. If you subtract the number of confessants (4,376) listed in the *Catalogo* for Raum and Potam from 6,000, the result, 1,624, is 27% of the total population. 1678: AGN 1678, DHM 1678. Zapata indicates an unspecified number of the inhabitants of Guasave were from abandoned pueblos and spoke a language different from Guasave. 1720: The figures listed are based on reports copied by Alegre (1959: 492) which give the number of families in various missions. Reports from 13 different settlements in the Opateria indicate the average family size in Sonora was 3.9 (see Alegre 1959: 41-518). This figure was used as a multiplier to arrive at total population figures for the Guasave and Ahome. 1764: Tamaron y Romeral 1937.

TABLE 5
POPULATION DECLINE AMONG THE MAYO

| | 1519 | 1614 | 1624 | 1656 | 1678 | 1720 | 1764 |
|--------------|---------------|---------------|---------------|--------------|--------------|--------------|--------------|
| Santa Cruz | | | 10,400 | 3,239 | 2,803 | 2,240 | 1,200 |
| Etchojoa | | | | 1,651 | 2,164 | 1,560 | 1,156 |
| Tesia | | | | 455 | 497 | 390 | 388 |
| Navojoa | | | 5,500 | 889 | 172 | 296 | 309 |
| Camoa | | | | 439 | 420 | 293 | 200 |
| Cuirimpo | | | | 1,091 | 1,141 | 780 | 630 |
| TOTAL | 60,000 | 30,000 | 15,900 | 7,764 | 7,197 | 5,659 | 3,883 |

SOURCES. 1519: As noted in the text, the comments of Antonio Ruiz and other data suggest the Mayo had a population comparable with that of the Yaqui. 1614: Perez de Ribas 1944: II, 24. 1624: AGN 1624a. This census indicates Father Varela had 10,400 Mayo under his care at "Tauera". Although the identity of Tauera is unknown, Tauera probably was the original Mayo name for the settlement of Santa Cruz. 1656: These figures are based on a census of "people of confession" (AGN 1656), which included all individuals over the age of 13. The percentage of the population under 13 was estimated on the bases of information supplied in a contemporary document (AGN 1657a), wherein it is noted that the Jesuits distributed 6000 rations a day in the two Yaqui settlements of Rarum and Potam. Presumably the rations were distributed among the total population of both villages. If you subtract the number of confessants (4,376) listed in the *Catalogo* for Raum and Potam from 6,000, the result, 1,624, is 27% of the total population. 1678: AGN 1678, DHM 1678. 1720: The figures listed are based on reports copied by Alegre (1959: 492) which give the number of families in various missions. Since reports from 13 different settlements in the Opateria indicate the average family size in Sonora was 3.9 (see Alegre 1959: 41-518), this figure was used as a multiplier to arrive at total population figures for the Mayo. 1764: Tamaron y Romeral 1937.

TABLE 6
POPULATION DECLINE AMONG THE YAQUI

| | 1519 | 1617 | 1624 | 1638 | 1656 | 1678 | 1720 | 1764 |
|--------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|---------------|
| Raum | | | 5,400 | | 3,429 | 3,230 | 1,186 | 2,684 |
| Potam | | | 7,250 | | 2,129 | 1,131 | 1,131 | 2,458 |
| Torim | | | 3,800 | | 2,009 | 1,070 | 1,244 | 3,645 |
| Vicam | | | 4,000 | | 1,890 | 1,271 | 1,404 | 3,618 |
| Bacum | | | | | 889 | 510 | 835 | 2,530 |
| Cocorit | | | | | 818 | 337 | 452 | 1,900 |
| Huirivis | | | | | | | | 5,077 |
| TOTAL | 60,000 | 35,000 | 20,450 | 15,750 | 11,164 | 7,549 | 6,252 | 21,912 |

SOURCES. 1519: As discussed in the text, various sources, including Obregon's chronicle of the Ibarra expedition suggest that the Yaqui numbered around 60,000, aboriginally. 1617: AGN 1619a: 241. 1624: AGN 1624a. 1638: The figures for 1638 are based on the "Fragmental History" (AGN 1638a; Sauer 1935: 14), which, internal evidence indicates was written in ca. 1638. The "History" indicates there were 5,250 *vecinos* or heads of households among the Yaqui. This figure was multiplied by 3, which it is assumed was the average family size at the time. As noted below, in 1764 the average family size for the Yaqui was around 3.8. A figure of 3 seems appropriate for 1636, given the rate of population decline indicated by later figures. 1656: These figures are based on a census of "people of confession" (AGN 1656), which included all individuals over the age of 13. The percentage of the population under 13 was estimated on the bases of information supplied in a contemporary document (AGN 1657a), wherein it is noted that the Jesuits distributed 6000 rations a day in the Yaqui settlements of Rarum and Potam. Presumably the rations were distributed among the total population of both districts. If you subtract the number of confessants (4,376) listed in the *Catalogo* for Raum and Potam from 6,000, the result, 1,624, is 27% of the total population. 1678: AGN 1678, DHM 1678. 1720: The figures listed are based on reports copied by Alegre (1959: 492) which give the number of families in the Yaqui missions. Since reports from 13 different settlements in the *Opateria* indicate the average family size in Sonora was 3.9 (see Alegre 1959: 41-518), this figure was used as a multiplier to arrive at total population figures for the Yaqui. 1764: These figures are from Bishop Tamaron y Romeral's (1937) report, which gives both total population and number of families for all settlements except Huirivis. The total population for Huirivis was arrived at by multiplying the number of families (1,336) by 3.8, which is the average family size for the 6 other Yaqui settlements for which the Bishop gave both family numbers and total population. Tamaron y Romeral's figures agree with Lizasoain's census of 1758 (AGN 1758).

8). From a population of around 12,000 in 1624, the Nebomes declined to less than 2,000 in 1764. Baptismal and census figures for the various Opata groups, including the Eudeve of Batuco and Matape (Ayvinos), indicate that between 1653-1678, the Opata declined from a population of approximately 30,000 to less than 14,000 (AGN 1653a; AGN 1678). Thereafter, the Opata continued to lose large numbers of children to smallpox and other maladies¹³. Accordingly, by 1764, the population of the Opateria declined to around 6,000, a mere fraction of its aboriginal size (AHH 1764).

The rapidity with which the Opata and Nebome vanished from Sonora pales in comparison with the wholesale destruction of various groups that occupied the uplands of southwestern Chihuahua. This region, which was occupied by the Tarahumara after ca. 1670, had previously been the homeland of the Chinipa, Guazapare, Tubari, Temori, and several other poorly known groups. As a consequence of disease, particularly during the period 1614-25, the Chinipa and their neighbors were largely destroyed by 1670 (Bannon 1939; DHM 1678). Unfortunately, because of the early introduction of disease and the relatively late date at which the Jesuits penetrated the Sierras, we can only guess at the number of natives who perished from disease. Similarly, there were many small "tribes" above the Rio Mayo and Rio Fuerte — like the Tepahue, Baciroa, Macoyahui, and Zoes — that were largely destroyed by Old World diseases at an early date, and whose remnants merged with groups like the Mayo, Tehueco, and Cinaboa. In 1624, for instance, the Tepahui, Conicari, and Macoyahui were still distinct groups and numbered ca. 5,400 (AGN 1624a). By 1678, all three groups numbered only 1,305, and included an unspecified number of Conicari who spoke Mayo (DHM 1678). In 1764, the settlements of Conicari, Macoyahui,

TABLE 7
POPULATION DECLINE AMONG THE NEBOMES OR
PIMA BAJO OF THE MIDDLE YAQUI

| | 1519 | 1624 | 1656 | 1678 | 1720 | 1764 |
|--------------|---------------|---------------|--------------|--------------|--------------|--------------|
| Tecoripa | | 9,750 | 762 | 279 | 211 | 210 |
| Suaque | | | | 415 | 78 | 391 |
| Cumiripa | | | | 457 | 406 | 180 |
| Onabas | | 10,000 | 1,143 | 865 | 652 | 520 |
| Movas | | | 1,301 | 307 | 195 | 121 |
| Alamos | | | | 60 | | |
| TOTAL | 25,000 | 19,750 | 3,207 | 2,383 | 1,542 | 1,422 |

SOURCE. 1519: Sauer 1935: 24-25. 1624: A census copied by Dunne (1940: 217) from 1625 shows 2,750 Nebome in the *partido* of Tecoripa, and 100 at Onabas. Another census from this same year (AGN 1624a) shows 9,750 for Tecoripa and 10,000 for Onabas. Still another census from 1625 (Dunne 1940: 219) gives figures of 9,759 and 10,000, respectively. It is assumed that the last 2 sets of numbers are more nearly correct. The numbers do not reflect what probably amounted to at least several thousand Nebome deaths during the epidemic of 1623-25. 1656: The figures are based on a census of "people of confession" (AGN 1656), which apparently included all individuals over the age of 13. The percentage of the population under 13 was estimated on the bases of information supplied in a contemporary document (AGN 1657a), wherein it is noted that the Jesuits distributed 6,000 rations a day in the two Yaqui missions of Rarum and Potam. Presumably the rations were distributed among the total population of both districts. If you subtract the number of confessants (4,376) listed in the *Catalogo* for Raum and Potam from 6,000, the result, 1,624, is 27% of the total population. 1678: AGN 1678, DHM 1678. Zapata noted that Alamos had 30 Pima and 62 Opata (Hegue) families with a total population of 175. It was assumed that the Pima constituted 35% of the total population. 1720: The figures listed are based on reports copied by Alegre (1959: 492) which give the number of families in various missions. Reports from 13 different settlements in the Opateria indicate the average family size in Sonora was 3.9 (see Alegre 1959: 41-518). This figure was used as a multiplier to arrive at total population figures for the Nebome. 1764: Tameron y Romeral 1937.

TABLE 8
POPULATION DECLINE AMONG THE OPATA OF
THE MIDDLE SONORA VALLEY

| | 1519 | 1639 | 1646 | 1656 | 1678 | 1730 | 1764 |
|--------------|---------------|---------------|--------------|--------------|--------------|------------|------------|
| Baviacora | | | 836 | 749 | 445 | 203 | 230 |
| Aconchi | | | 973 | 953 | 580 | 382 | 240 |
| Huepac | | | 1,176 | 1,463 | 268 | 82 | 120 |
| Banamachi | | | 720 | 972 | 338 | 168 | 144 |
| Senoquipe | | | 320 | 351 | 130 | 109 | 116 |
| TOTAL | 14,000 | 10,500 | 4,025 | 4,488 | 1,761 | 944 | 850 |

SOURCE. 1519: As noted in the text, Obregon's comments regarding the "province" of Senora suggest a figure of ca. 14,000. 1639: AGN 1639a: 371. 1646: AGN 1646. The *puntos de anua* for 1646 indicate there were still some gentiles who remained to be settled and baptized at Aconchi. The figure for Aconchi was increased by 21% to include these gentiles. An increase of 21% was suggested by data from 1656, which indicated Aconchi had 21% more people than Baviacora. In 1678, there was a 23% difference between the two settlements. 1656: The figures are based on a census of "people of confession" (AGN 1656), which included all individuals over the age of 13. The percentage of the population under 13 was estimated on the bases of information supplied in a contemporary document (AGN 1657a), wherein it is noted that the Jesuits distributed 6,000 rations a day in the two Yaqui missions of Rarum and Potam. Presumably the rations were distributed among the total population of both districts. If you subtract the number of confessants (4,376) listed in the *Catalogo* for Raum and Potam from 6,000, the result, 1,624, is 27% of the total population. 1678: AGN 1678, DHM 1678. 1730: DHM 1730. 1764: AHH 1764.

and Tepahui, together, had ca. 1000 inhabitants, and apparently the inhabitants of Conicari as well as Tepahui were both now speaking Mayo (Tamaron y Romeral 1937: 240-241).

Pre-Jesuit Population Reductions

Although it is particularly difficult to estimate the losses sustained by groups like the Chinipa, native communities throughout northwest Mexico were affected by epidemics that went unobserved by Europeans. As we have seen, there is considerable indirect evidence that the Laguneros, Yaqui, and Opata — to name but a few — were affected by disease prior to missionization. Studies of virgin populations exposed to diseases such as smallpox suggest that pre-Jesuit epidemics could have destroyed upwards of 50% of the population of native communities (e.g. Ashburn 1947; Dixon 1962; Shurkin 1979). Reductions of this magnitude also are suggested by a comparison of population estimates made by Spanish explorers and later by the Jesuits.

It will be recalled that in 1533, the Second Anonymous Reporter observed that the Rio Yaquimi (Yaqui) had the largest towns and was the most densely populated river explored by Diego de Guzman (Hedrick and Riley 1976: 49). Some 30 years after Guzman's entrada, Baltasar de Obregon, chronicler of the Ibarra expedition, also commented that the Yaquimi was the most thickly populated river in what is today, northern Sinaloa and southern Sonora. Significantly, Obregon further commented that 15,000 men could be found along the lower Yaqui, for a distance of 10 leagues from the sea (Hammond and Rey 1928: 257-258). Obregon presumably was referring here to all able-bodied men between the ages of 16-50 — those who might be apportioned through *repartimientos* or assembled for military purposes¹⁴.

If this assumption is valid, and we further assume that, aboriginally, the Yaqui did not differ greatly from the modern population of Mexico in terms of its age/sex distribution¹⁵, then the males mentioned by Obregon constituted approximately 25% of the Yaqui's total population. The Yaqui in 1565 numbered, therefore, around 60,000. Since Jesuit figures from the years 1617-22 indicate that there were approximately 35,000 Yaqui at the time of missionization (AGN 1619a :241; AGN 1621: Perez de Ribas 1944: II, 63-65), the Yaqui apparently lost close to 42% of their population prior to 1617. These losses probably were sustained during the epidemics of 1616-17, 1611-12, and 1606-07, if not sooner.

Although the exploration chronicles and later historical materials indicate or often imply that the Yaqui were the largest native population in southern Sonora and northern Sinaloa, aboriginally, the Yaqui did not greatly out-number their Mayo neighbors immediately to the south. This much is apparent from Antonio Ruiz's observation regarding an expedition in 1583 to the Rio Mayo. During the *entrada*, Ruiz counted the number of houses along the river, from the mountains to the sea, and found there were 24,000 dwellings¹⁶ (AGN n.d.; Sauer 1935: 17). Although roughly a third of these houses probably belonged to the Conicari, Macoyahui, and Tepahue¹⁷, this would still leave 16,000 dwellings for the Mayo, some of which probably were used for storage or ceremonial purposes. Suffice it to say that Ruiz's account clearly supports the idea that the Mayo were as numerous as the Yaqui, aboriginally. Like the Yaqui, the Mayo also were affected by one or more epidemics prior to missionization. The Mayo may well have lost 40% or 50% of their population during the epidemics of 1606-07 and 1611-12. At the time of missionization, in 1614, there were approximately 30,000 Mayo

(Perez de Ribas 1944: II, 13).

The Opatz of the middle Sonora Valley are another group for which there is good evidence of population reductions prior to missionization (Table 8). Although many explorers commented on the "Senora" being both numerous and sophisticated, Obregon was specific, noting that the "province" of "Senora" had over 20,000 inhabitants (Hammond and Rey 1928: 164). The "province", as Obregon defined it, included not only the middle Sonora Valley, but the Rio Moctezuma Valley, including Oposura and Cumpas ("Cumupas")¹⁸ reportedly. At the time of missionization, in ca. 1639, there reportedly were 10,500 Opatz in the middle Sonora Valley (AGN 1639: 371). When the Jesuits moved into the Rio Moctezuma Valley (1645), it had a population of ca. 5,000 (Perez de Ribas 1896: II, 488). A comparison of Obregon's estimate of more than 20,000 with Jesuit figures totaling 15,500, suggest that the "provinces" of Senora lost at least ca. 25% of its population prior to missionization.

The Patterns and Reasons for Decline

The available evidence suggests that many native groups, often the inhabitants of a valley or river valley segment, lost 25-50% of their population prior to missionization. After the founding of missions, most native peoples lost an additional 90% of their population. These results parallel what happened in Peru and Central Mexico between 1520-1620 (Borah and Cook 1960, 1963; Cook 1981; Cook and Borah 1960; Cook and Simpson 1948; Gibson 1964: 138). Because of the relatively late date at which Old World diseases were introduced in northern Sinaloa and Sonora, the nadir was reached at a correspondingly late date, ca. 1720. The decline in central Mexico tapered off around the mid 1600's.

Although the evidence that Old World diseases killed countless Amerindians is certain, an increasingly popular notion is that exploitation, enslavement, and appropriation of Indian land and resources were of greatest significance in terms of the destruction of native societies (e.g. Johansson 1982). With respect to northern New Spain, a number of researchers have emphasized Spanish cruelty and slave raiding as factors responsible for the precipitous decline of the Tahue and Totorame (Sancroft 1886: 552-553; Cook and Simpson 1948: 16, f.4; Sauer 1935: 6, 10). Similarly, one could argue that large numbers of Indians died during the many revolts that were crushed by the Spaniards. In a recent analysis of Jesuit and Yaqui relations, Hu-DeHart (1981: 50-52) has advanced another "cultural" explanation for population decline. Specifically, Hu-DeHart has suggested that the decline of the Yaqui prior to 1678 was more apparent than real, and that many Yaqui lived away from the missions, as laborers in Spanish mines of the period.

There can be little doubt that Spanish slave raiding and the practice of *encomienda* destroyed tens of thousands of lives among the Tahue and Totorame¹⁹. Old World diseases were most certainly of greater significance, particularly malaria, typhoid, and dysentery. The prevalence of malaria and intestinal diseases in coastal Nayarit and Sinaloa during the sixteenth century is reflected in the comments of Mota y Escobar (1940) and Arregui (1625)²⁰.

Elsewhere, in fact, throughout northern New Spain, Old World diseases also were more destructive than wars and rebellions. Perez de Ribas (1944: III, 207) noted, for instance, that 1,000 natives perished during the Tepehuan revolt; the most destructive of all rebellions. This number could be trebled, and it still would not compare with the many thousands that died during the epidemics of the mission period, particularly those in 1606-07 and 1623-25.

It was likewise disease that emptied the Jesuit missions, and not the lure of employment in the mines. As Hu-Dehart has herself pointed out (Hu-DeHart 1981: 40-41), there were very few mines in Sonora or other areas of Nueva Vizcaya during the seventeenth century that could have employed hundreds, never mind thousands of Yaquis. It was not until the 1700's that numerous mines were opened in Sonora that attracted large numbers of Yaqui and Mayo²¹.

Notes to Chapter 6

1. This silence may have been a consequence of frequent charges by civilians and regular clergy that the Jesuits mistreated and exploited the Indians (AGN 1657a; AHH 1638; Bannon 1955: 108-117; Dunne 1948: 81-87; Hackett 1937: 94-127; Polzer 1972). The Jesuits may have avoided mentioning Indian population reductions for fear that their foes might use such information to attack the Jesuits' "tithe-exempt" status and their control of large numbers of Indians. It should be noted that, even if the Jesuits consistently commented on disease mortality, their figures would not include the many Indians beyond the mission frontier that died during epidemics. As we have seen, indirect evidence points to many native peoples having been affected by disease prior to missionization.
2. Perez de Ribas and other sources frequently referred to record books that were used by the priests to track the progress of Indian converts (Perez de Ribas 1944: II, 93, 147, 167; Polzer 1976: 42). These record books provided information on baptisms, confessions, communicants, and other relevant data that were forwarded to Mexico City for the annual report.
3. A census from 1624 (Dunne 1940: 217) indicates there were 67,375 natives in the west coast missions.
4. Perez de Ribas (1944: II, 222; 1896: II, 488) noted that 300,000 natives were baptized by ca. 1644, and that, by 1654, this number had grown to 400,000 (Perez de Ribas 1896: II, 562). Although figures are lacking, the Jesuits undoubtedly baptized over 100,000 natives between 1654-1678.
5. This figure is an estimate and is based on a visitation or inspection of Nueva Vizcaya undertaken in 1762-63 by Father Ignacio Lizasoain. During his *visita*, Lizasoain administered the sacrament of confirmation to 18,431 natives (Dunne 1948: 226). The natives confirmed by Lizasoain presumably included all those over the age of 13. If we assume that this cohort constituted 70% of the total mission population — a percentage which corresponds with modern census data (ca. 1920) from Mexico — then the total mission population numbered 23,960.
6. Dunne (1944: 185-186) stated that the mission of Parras was turned over to diocesan clergy in 1646 by order of the Bishop of Durango. Decorme (1941: II, 34-35) indicated that the transfer took place in 1652.
7. It is difficult to be precise about the size of the northern Tepehuan population in 1598. The Tepehuan clearly were on a par with the Acaxee and Laguneros. In 1601, Father Arnaya reported that the Jesuits had learned that there were more than 6,000 Tepehuan in the mountains near what became

the mission of San Miguel (DHM 1601: 67). The ~~area~~ for 1597 likewise notes that there were 5 Tepehuan pueblos in the Valley of Atotonilco (DHM 1597: 32). These were just two of many areas with large Tepehuan populations.

8. The **Razon y minuta** (Hackett 1926: 152) indicates there were 514 Tepehuan in the Missions about Inde, 634 at Santa Catalina, and 264 in the district about Guanacevi. There were other Tepehuan, perhaps numbering in the hundreds, in Cuencame, Sauceda, and other mining settlements. With respect to the Acaxee, the **Razon y minuta** indicates that, besides the 681 natives under Jesuit care, there were 384 natives, many of whom were probably Acaxee, in the Franciscan mission at Topia (Hackett 1937: 157).

9. Although the Jesuits first began working among the Xixime in 1607, it was not until after the Xixime revolt that large numbers of Xixime were baptized (Dunne 1944).

10. Besides the Acaxee, there were 285 Spaniards and their servants in the **partidos** in Atotonilco, Tamazula, and Badariaguato (DHM 1678).

11. Zapata gave a figure of 1,105 Christians for the four Tepehuan missions. Included in this figure were 17 Opata families ("Ore speakers") in San Jose del Tizonazo. The **partido** of Santiago Papasquiario also encompassed a Christian pueblo (San Nicolas) with 29 Xixime families that worked on the **hacienda** of General Cristobal Nevares. Zapata also counted several hundred Spaniards and "other types of people" in figuring the Christian population of the Tepehuan missions (DHM 1678: 310-315).

12. Acosta (1949: 100-101) implied that there were at least several thousand Mayo working in mines and on Spanish farms and ranches in ca. 1760.

13. A report from (AGN 1678b), indicates that the average family size in the Opata settlements of Huepac, Banamachi, and Senoquipe was 4.5, 4.3, and 4.3, respectively. After Sonora was affected by an epidemic, in ca. 1680 (AHH 1684), the average family size in each of the same three communities dropped to 3.7, 3.4, and 4.3, respectively (AHH 1684b). The figures indicate that each family in Huepac and Banamachi lost one family member, presumably an infant or child with no history of exposure to disease. The latter inference is supported by data on infant baptisms and deaths. Over a 3 year period, from 1675-78, the birth rate in Huepac, Banamachi, and Senoquipe averaged over 50 births per thousand (AGN 1678b). This is an extremely high birth rate (Wrigley 1969: 62), and apparently reflects the pressures that women were under to produce greater numbers of children, and thus, keep up with the enormous infant mortality rate. In northern New Spain, as in Mesoamerica (Gibson 1964: 141-142), only a third or a quarter of those born survived childhood.

14. As a soldier and author of a work that was designed to impress the Crown with his knowledge of how best to exploit northern New Spain, Obregon was likely to have had economic or military concerns in mind when he commented on the number of men along the Yaqui.

15. Cook and Simpson (1948: 25-26) pointed out that males 16-50 represented 24% of the total population of Mexico in 1930. Along with Sauer (1935), they

aptly argued that the size as well as the age/sex distribution of many aboriginal populations in Mexico probably did not differ greatly from their modern rural counterparts.

16. Although Sauer (1935: 17) has suggested that Ruiz or a copyist made a clerical error, substituting houses for persons, Ruiz stated that his job during the **entrada** was to count houses and record the names of Indian pueblos that might later be distributed as **repartimientos** (AGN n.d.; Sheridan 1981: 76).

17. A census prepared in January, 1624 (AGN 1624a) indicates there were 5,000 Tepahui, Macoyahui, and Conicari along the upper Rio Mayo. At the same time there were 15,900 Mayo living downstream. If these proportions held in 1583, then roughly two-thirds of the 24,000 houses counted by Ruiz belonged to the Mayo.

18. Obregon specifically stated that the "province" encompassed an area thirty leagues in length and 20 in breadth (Hammond and Rey 1928: 164).

19. Bancroft (1886: 552-552), citing Tello and other early historians, stated that half the population of Nueva Galicia was destroyed by 1545, and by 1590, over 90% of the native population had vanished. Bancroft cites disease as well as Spanish exploitation and cruelty as reasons for this decline.

20. There are several reasons for believing this precipitous decline began after malaria, typhoid, and dysentery were introduced during Guzman's conquest. All three maladies thrive in sub-tropical environments such as exists in coastal Nayarit and Sinaloa. It also is apparent that malaria and what appears to have been typhoid and dysentery became endemic along almost the entire Gulf and Pacific coasts of southern Mexico and central America during the decades following Cortes conquest. By ca. 1580, the trio of chronic diseases wiped out 90% of the coastal population of Yucatan (Thompson 1970: 57). A comparable decline occurred elsewhere along the coast, and was double the rate of decline in highland areas during the immediate post-conquest period (Borah and Cook 1963: 89; Cook and Borah 1962: 52; Sauer 1948; Thompson 1970: 57). Significantly, the prevalence of chronic diseases in Nayarit and Sinaloa was affirmed by Bishop Mota y Escobar in 1605. The Bishop noted that the Pacific coast region was "tierra caliente" — an unhealthy place where the native population had been largely destroyed or "consumed" (Mota y Escobar 1940: 63-64, 66-67, 86, 89-91). Reportedly, the most common illness in Guadalajara and its environs was a form of malaria "**tercianas**", "which the physicians called doubles" (Mota y Escobar 1940: 50). Mota y Escobar apparently was referring here to quartan malaria, first introduced by Guzman. Interestingly, fifteen years after Mota y Escobar wrote, Domingo Lazaro Arregui compiled a history of Nueva Galicia in which he also alluded to what appears to have been malaria and/or intestinal diseases. Specifically, Arregui observed that, by 1621, it was mostly young people who suffered from disease, particularly "a type of very strong fevers, accompanied by stomach pains and bleeding" (Arregui 1621: 26).

21. During the seventeenth century only a small number of Indians were employed by Spaniards in Sonora or other parts of Nueva Vizcaya (AGN

1657a; Bannon 1955: 110; Navarro Garcia 1967: 69, 214; West 1949: 48). In a report from the 1670's, Father Marras noted that the number of Indians who were working in Spanish mines in Sonora was 2,000 (Polzer 1972a: 150).

CHAPTER VII

OLD WORLD DISEASE, CULTURE CHANGE, AND THE DYNAMICS OF JESUIT AND INDIAN RELATIONS

The great suffering and loss of life that many communities experienced during the sixteenth and seventeenth centuries had a profound impact on the structure and functioning of native societies, affecting, in turn, Indian and Jesuit relations. The changes wrought by smallpox and other maladies are reflected in the incongruous descriptions of native life that were compiled by Spanish explorers, and later by the Jesuits. The explorers' accounts indicate that many areas of the Greater Southwest were well populated, with villages and towns as well as *rancherías*. As late as 1593, the Jesuits reported there were over 100,000 natives living in pueblos with permanent houses in northern Sinaloa and southern Sonora (Shiels 1934: 109-110). Still later, in 1617, Perez de Ribas found 16,000 Yaqui in 12 pueblos at the mouth of the river (HHB 1617). In 1638, Father Contreras likewise commented that there were "innumerable" Tarahumara living in good-sized pueblos in the San Pablo and San Ignacio Valley (AGN 1638: 286-287). In many areas, settlements with several hundred to 1000 houses were common.

Basic principles of epidemiology dictate that infectious diseases would have had their greatest impact on large, nucleated settlements, prompting

the abandonment of villages and towns and a proliferation of **rancherías**. Data from the mission period indicate that it was in fact characteristic of native peoples to flee their settlements following outbreaks of disease and famine (AGN 1596: 62; Hackett 1937: 122; Perez de Ribas 1944: III, 280). The abandonment of villages and towns and a proliferation of dispersed **rancherías** is borne out by recent archaeological data. Specifically, recent survey and excavations in the Sonora Valley suggest that many Opata villages, and particularly the 3 largest villages in the Valley, were abandoned sometime around the turn of the seventeenth century (Reff 1981). Although the available evidence does not allow us to be more precise in dating this abandonment, we do know that when the Jesuits reached the Sonora Valley in 1638-39, the Opata were living in dispersed **rancherías** (AGN 1639a; Perez de Ribas 1944: II, 187). Gone were the large towns that the explorers' reported and which, as indicated by archaeological evidence, existed as early as the thirteenth century. Significantly, in other parts of Sonora, the Jesuits also found many Opata in dispersed **rancherías** (Perez de Ribas 1896: II, 1944: II; Spicer 1962).

Population reductions and the chaos that accompanied many epidemics also had a profound impact on native productive and organizational strategies. Logic alone dictates that communities that suddenly lost 25-40% of their population would have great difficulty clearing, sowing, and harvesting agricultural fields; constructing and maintaining irrigation systems; organizing communal hunts; or preparing food for peak periods of consumption and scarcity. Significantly, we know that, aboriginally, groups like the Opata, Chinipa, Nebome, and eastern Tarahumara relied on canal irrigation for regular crop surpluses (AGN 1614a; AGN 1615; AGN 1627; AGN

1628b; AGN 1630a; DHM 1652; Nentvig 1980: 88). Others like the Cahita practiced a simple but highly productive form of slash and burn agriculture, farming large tracts of floodplain that were irrigated during semi-annual floods (Beals 1943). In the canyon bottoms and along the slopes of the Sierras, the Acaxee and their neighbors also produced food in relative abundance (Beals 1933; DHM 1601; DHM 1618). With food surpluses, many native communities were able to support the production and trade of a host of basic commodities and luxury goods. Among the many items mentioned by the explorers were turquoise, buffalo robes, cotton, shell, salt, obsidian, and pottery (Riley 1976). Of course, once the repercussions of epidemics made food surpluses unpredictable, craft specialization declined along with local and long distance exchange. The Jesuits were thus silent about trade or commented on its absence (e.g. Perez de Ribas 1944: II, 122).

The collapse of productive and organizational strategies, in turn, undermined social and political institutions, particularly the status of elites, empowered through differential access to or control of crop surpluses and trade. Aboriginally, native settlements in a number of areas were integrated into what the explorers termed "kingdoms" (e.g. Senora, Marata, Tototenac, Cibola). As best we can determine, these "kingdoms" were more like chiefdoms, and were composed of ranked, patrilineal descent groups. At the apex of the social system was the "principal chief". As was the case in other areas of the New World, the principal chief's position as well as the entire system of descent upon which it was based, disintegrated following repeated and random outbreaks of disease (Harris 1979: 100). In a disease environment, it was impractical to follow rigid alliance rules governing marriage; those who did often found their partners had no daughters or

sisters to exchange. Lineages quickly faded into clans, thus broadening the rules governing wife-exchange, and providing a larger network to draw upon for military and other manpower needs¹.

As a consequence of disease and the threat of isolation, many native peoples also may have found it necessary to rely heavily on fictive kinship². Fictive kinship guaranteed membership in a group larger than the bilateral family (Mintz and Wolf 1950), an important consideration in a disease environment. Fictive kinship, in effect, enabled the individual to recapture some of the security that was lost with the destruction of lineage and extended family relationships (Foster 1953: 23). It also provided a mechanism by which communities that were devastated by disease could quickly augment their population. Accordingly, the Jesuits frequently wrote about one "tribe" adopting another (Perez de Ribas 1944: I, 351). Researchers have noted a similar phenomenon in other areas of the New World (Ewers 1973: 109; Schleiser 1976: 134). To augment population, patterns of warfare also may have changed, such that captives, particularly women and children, were no longer killed³.

Lastly, the unprecedented and inexplicable suffering caused by disease undoubtedly shook the foundations of Indian belief systems. Like their European counterparts, native peoples invariably equated epidemics with the wrath of God or some unspeakable sorcery (McNeill 1976: 184). Native priests and shamans — those who were charged with contacting the Gods and counteracting witchcraft — were totally unprepared for the devastation wrought by smallpox and other maladies. We can assume from later historical materials (Karns 1954: 245; Reyman 1980: 49; Russell 1908: 41-45) that many shamans were killed because they failed to halt the unprecedented

suffering caused by disease. Similarly, native priests or caciques that fulfilled priestly functions must have found their leadership undermined by *el cocolistli*. The Jesuit materials are replete in this regard with accounts of *hechiceros* who organized "secret" rites to ward off disease, and who were discredited once their followers perished⁴. Had the Jesuits not arrived when they did, it is likely that some native priests and *hechiceros* would have reordered native belief systems, providing some rationalization for disease. The smallpox cults that developed among the Dahome in west Africa prior to 1850 are perhaps instructive in this regard. The cults came to believe that the earth deities — big brother and little brother — used smallpox and lightning, respectively, to punish the people for various transgressions, including sorcery. The smallpox cults built shrines where offerings were made and instituted behavioral reforms and punishment to insure the continued support of Big Brother⁵ (Parrinder 1949; Quinn 1967).

The Dynamics of Jesuit and Indian Relations

In general, all aspects of native life must have been negatively affected by Old World diseases. Given the uncertainty of life, it is not altogether surprising that the Jesuits were so successful in northwest Mexico. For many years now, researchers have attributed Jesuit success, in part, to the exceptional character of the Jesuits as individuals and as an organization for directed culture change. The "great man" theme is conspicuous in the works of early Jesuit writers (e.g. HHB 1633; Nieremberg 1896; Perez de Ribas 1896, 1944), many of whom wrote for the benefit of noviciates, hoping to instill within them an appreciation of the heroic sacrifices that each would have to make once they entered the mission field. Later historians, including Parkman (1867) and Bolton (1935), picked up on the "great man"

theme, emphasizing the discipline, training, and devotion that the priests brought to their job of converting the Indian (Bannon 1947; McShane 1938; Shiels 1934). In recent decades, Jesuit success has been linked to the humanistic education and morale philosophy of the Society of Jesus. The Jesuits, when compared with other religious orders, purportedly were more flexible, patient, and willing to adapt native beliefs to Christian teachings (Dunigan 1958). In his *Cycles of Conquest* Spicer (1962: 58) suggested that what the Indians had and what the Jesuits and other Spaniards offered were in fact compatible. By this statement Spicer seems to have implied that it really was unnecessary for the Jesuits to significantly modify their goals regarding directed culture change.

There is a little truth in each of the above explanations of Jesuit success. There can be little doubt, for example, that the Jesuits were truly remarkable men⁶. The history of the Jesuit experience is a history of tremendous personal sacrifices — sacrifices that continually were made on behalf of the Jesuits' neophytes. Similarly, the Jesuits, as an organization, followed an intelligent strategy of directed culture change (Polzer 1976). The Jesuits made a conscious decision, for example, to concentrate on winning the hearts and minds of native children (Perez de Ribas 1944: I, 232)⁷. Toward this end, the Jesuits established seminaries in San Felipe and Durango. There, native children — often the sons of caciques — were indoctrinated so that when they reached adulthood they could return to their communities and assume responsible positions of leadership. By staging passion plays and explaining Christian doctrine through the use of pictures which the priests brought from Mexico City, the Jesuits also were able to reach the many children who remained in the missions as well as their

parents (Polzer 1976: 48).

The fact that most Jesuits followed a well reasoned and beneficent approach to missionization does not, however, get us very far in terms of explaining native acceptance of alternative behaviors and beliefs. For all their kindness and understanding, the Jesuits had very definite views regarding the proper conduct of human behavior. In this regard, too much appears to have been made of the Jesuits' willingness to accommodate native values and beliefs. As Alvarado (1974) has pointed out, the Jesuits were an order born of the counter-reformation, and were loathe to consider the possible fusion of Catholic and pagan elements⁸. Indeed, Perez de Ribas' *Historia* and the Jesuit *annals* are replete with accounts of priests who quickly put a stop to pagan dances, idol worship, or even less objectionable practices, like leaving offerings of food with the dead or wearing one's hair long (AGN 1596: 64-67; Perez de Ribas 1944: I, 321). It is wrong to conclude, therefore, that Jesuit success was largely a consequence of the priest's flexibility. Similarly, while there were many areas where native behaviors and beliefs were similar or compatible with those of the Jesuits, there also were radical differences, particularly with respect to religion⁹.

As was the case in other areas of the Americas (e.g. Leacock 1980: 36), the Jesuits asked the Indians to make some very difficult and agonizing choices. Although, as indicated, various reasons have been offered to explain Jesuit success, the fact that hundreds of thousands of natives decided to accept the Jesuits generally has been viewed as a consequence of native recognition of the material benefits that accrued to missionization. This view of the dynamics of Jesuit and Indian relations is one of many variants of the civilization-savagery myth. At its worst, the myth has led researchers

to characterize the Indian as inherently child-like, exceedingly simple and often stupid (e.g. Dunne 1940: 57). A more benign view is that native peoples throughout much of the Greater Southwest were backward relative to their European counterparts. Accordingly, anthropologists have characterized native life in the Greater Southwest in terms of small, economically and politically independent **rancherías** that lacked permanent houses, regular surpluses, craft production, or complex forms of political organization (Bandelier 1890, III, 48-53; Bancroft 1883: 584; Spicer 1962). Against this backdrop, the Jesuits have been cast in a role analogous to modern day extension agents, and have been credited with transforming the "barbarians" of northern New Spain into civilized Christians (Bolton 1917). Indeed, through the introduction of Spanish tools, crops, cattle, and other "innovations", the Jesuits purportedly revolutionized aboriginal culture (Spicer 1965: 58, 292, 295-297; 1980: 32, 86). Specifically, the Jesuits have been credited with introducing town life, and teaching the Indians how to build permanent houses (Hinton 1983; McShane 1938; Spicer 1962: 292). The priests have likewise been credited with introducing new and improved methods of farming and irrigation, of organizing the division of Indian labor, and of teaching the Indians how to husband surpluses (Bannon 1945: 194-195; Fontana 1976: 50-51; Hu-Dehart 19: 23, 36-37; McShane 1938: 8; Pennington 1980: 64). Those skills that the Jesuits were unable to teach, particularly various arts and crafts, were taught by Indians imported by the Jesuits from other parts of Mexico. The missions, in Bolton's (1917: 57) words, were like a "great industrial school", and accordingly, each had its shops where shoemakers, carpenters, tailors, blacksmiths, weavers and other artisans worked and trained apprentices (Bannon (1945: 196).

The idea that Spanish or Jesuit innovations were an important inducement for missionization, and that these innovations revolutionized native life during the early historic period, is not supported by empirical evidence. Although the Jesuits seldom discussed the economic side of mission life (Bannon 1945: 194), there were several occasions when their interests were threatened by civil and ecclesiastical encroachment that prompted reports on the wealth and functioning of the missions. In 1638, Perez de Ribas, who was at the time the Father Provincial, compiled a report that was sent to Spain along with testimony taken from a number of civilians in Nueva Vizcaya ¹⁰ (AHH 1638; Hackett 1937: 95-127). Some twenty years later, in 1657, Father Francisco Xavier de Faria prepared a much more detailed report on the status of the missions ¹¹ (AGN 1657). Significantly, both Jesuit reports as well as the testimony taken from civilians in 1638 clearly indicate that many Spanish or Jesuit "innovations" were of little consequence.

All sources agree, for instance, that the Jesuits and their mission charges subsisted principally on maize, beans, and squash (see AGN 1638; 1657: 25-29; Hackett 1937: 95-106, 121-127). For a variety of reasons, but particularly because of the lack of suitable land and the heat, the Jesuits had great difficulty growing wheat. Most of the wheat consumed in the missions was in the form of communion wafers that were made from wheat raised on Spanish farms in the Santa Barbara-San Bartolome district of southern Chihuahua (AHH 1638; Bannon 1955: 195; Hackett 1937: 98, 123, 125). Even in the late 1700's, after more than a century of experimentation, wheat was still difficult to raise in Sinaloa and many other parts of Nueva Vizcaya (Tamaron y Romeral 1937: 224; Villa Senor y Sanchez 1952: 383).

Such was not the case with maize, which, at the time of the Conquest, had been successfully grown for more than a millennium in many areas of the Greater Southwest. Accordingly, Father Mariano noted in 1777 that, while some Tarahumara raised wheat, all grew maize. In a good year, those who planted wheat harvested ten *fanegas* (25.8 bushels) for every *fanega* that was sown. Maize, by contrast, provided a rate of return of 40 to 1 in poor soils, and 80 to 1 in the richer *rosas* or fields that were prepared by the Tarahumara using slash-and-burn agriculture (Sheridan and Naylor 1979: 108-110). Similar high yields from maize were obtained by the Jesuits and their neophytes in Sonora. Indeed, not only were the yields from maize 3 to 6 times that of wheat (Nentvig 1764: 23; Treutlein 1949: 46)¹², but one Jesuit noted that maize tasted better and was preferred over wheat by Indians as well as Sonorans and Mexican-born Spaniards (Treutlein 1949: 196).

From Faria's report in 1657 we learn that the Jesuits had difficulty propagating many Old World plants that were brought to the northern frontier. In 1657, for instance, there were only a few, scattered missions with small orchards and vineyards¹³. According to Faria, the "fruits" of the missions ordinarily were those that grew wild in the scrubland (e.g. pithaya, prickly pear); most of the "wine" consumed in the missions was likewise native (mescal), or was imported from Mexico (AGN 1657: 15, 25-29). It should be noted here that archaeological research at a number of Pima Sobaipuri sites in southern Arizona lends further support to Faria's statements. Despite the large number and variety of vegetables, fruits, and flowers introduced by Kino and other Jesuits (e.g. Kino 1948: II, 265), very few crops or Old World plants were found to have been cultivated by the Sobaipuri during the early mission period (DiPeso 1953: 238, 275)¹⁴.

It is further apparent that native, as opposed to Spanish farming practices were employed by the Jesuits and their neophytes. In his report, Faria noted that the Jesuits had tried to use oxen and plows, but found that the oxen died from heat prostration and the plows created great dust storms (AGN 1657: 28). Simple digging sticks and stone axes were all that many mission communities required for clearing land and sowing crops. Indeed, one Franciscan who was working among the Tarahumara in 1777 noted that although the Tarahumara with their digging sticks were not as fast as oxen, the Tarahumara were much better at turning and preparing the soil than oxen (Sheridan and Naylor 1979: 115).

The Jesuits also enjoyed limited success importing artisans from Mexico to teach the Indians various trades. In 1638, the former Captain of the **presidio** and province of Sinaloa, Don Francisco de Bustamente, testified that the priests' houses and the churches in Sinaloa were built by the priests and the Indians, and that the priests had no other workmen or artisans (Hackett 1937: 94-117). This situation apparently changed only a little during the next 20 years. In his report from 1657, Faria noted that while the priests had endeavored to bring architects, mechanics, farmers, carpenters and other artisans to the northern Frontier, the number of artisan-teachers was small. According to Faria, a few artisans were scattered throughout the missions, such that one mission might have a carpenter, another a tailor, and so forth (AGN 1657: 15). Significantly, in chapter 27 of his report, Faria gave a detailed description of the typical Jesuit residence in northern New Spain¹⁵, and nowhere did he mention or allude to shops where carpenters, mechanics, or other artisans worked and trained Indian apprentices. Judging from the praise that many Jesuits lavished upon Opata weavers (e.g. Netvig

1980: 68-69; Treutlein 1949: 54; 1965: 122), the Jesuits had little need to teach craftsmanship and artistry.

Of the many "innovations" introduced by the Jesuits, cattle clearly had the most significant impact on aboriginal culture. The Jesuits introduced a large number and variety of domesticated animals, most of which were well received by native peoples¹⁶ (Bannon 1945: 195; Och 1965: 177; Polzer 1972a: 169). It is doubtful, however, that cattle constituted an "improvement" over wild game as a food resource. Many early observers, including the Jesuits, commented on the relative abundance of deer and all types of wild game and fish in Sinaloa and Sonora (e.g. Hammond and Rey 1928: 87, 102, 257-259; Hedrick and Riley 1976: 45, 52; Pennington 1980: 207; Perez de Ribas 1944: I, 134, II, 64, 123; Pfefferkorn 1949: 106). There is no evidence that the number and variety of wild resources inhibited population growth and cultural development, or posed a threat to the economic well being of native peoples. The same, it should be noted, cannot be said for cattle, which destroyed millions of acres of land in northwest Mexico during historic and modern times¹⁷. If cattle were in fact an "improvement" over wild game, it was perhaps because cows, sheep, and goats were a more readily available source of nourishment during epidemics. Indeed, most epidemics in northern New Spain as well as in other areas of Mexico (e.g. Cooper 1965) occurred during the fall and winter, when large mammals such as deer were hunted aboriginally. As Perez de Ribas (Hackett 1937: 100) pointed out, were it not for the cattle, the Indians would have died during times of sickness.

If it is indeed true that Jesuit "innovations" were of little consequence, what exactly precipitated and sustained native acceptance of missionization? It is, of course, difficult to infer what was in the minds of

native peoples, particularly in the absence of native commentaries. Still, it is apparent that many natives petitioned for missionaries and baptism, hoping that the priests and their "cleansing of the soul" would provide protection from disease (e.g. AGN 1639a; Alegre 1958: 470, Decorme 1941: 360-361; Sheridan and Naylor 1979: 36). This interest in the Jesuits was a predictable consequence of the failure of native religious to explain and cope with the unprecedented suffering caused by disease. Part of the shamans undoing was the fact that, after they pronounced a person as dying, the relatives frequently abandoned the sick¹⁹. This was hardly an effective strategy for dealing with acute infectious diseases. Not surprisingly, after many of the shaman's patients died, irate relatives often blamed the shamans, taking the shaman's life in revenge (AGN 1653a: 137-138; Beals 1943: 63; Karns 1954: 245; Russell 1908: 41-45).

The Jesuits were in a much better position to cope with disease. Like most Europeans, the Jesuits were quite familiar with smallpox and other diseases. Although, they believed, like the Indians, that disease was a form of divine punishment, the Jesuits knew why the Indians were being punished. They were able to use this information to their advantage, scolding the Indians for their idolatry and their allegiance to the *hechiceros*. This message carried great weight once it was realized the priests went unscathed during most epidemics.

There was a lot more to native acceptance of the Jesuits, however, than just the priests' relative immunity to disease. From an epidemiological perspective, the Jesuits were quite healthful. While the *hechiceros* practiced slight of hand or struggled with their pharmacology, the Jesuits went to great lengths providing the sick with food, water, and protection from the

elements. The Jesuits also used medicine that was brought from Mexico (Perez de Ribas 1944: I, 375; II, 234, 529, III, 32) and numerous native concoctions that earned the praise of many priests²⁰ (Kay 1977; Nentvig 1764: 43; Treutlein 1949: 60-78). The priests, like their native counterparts, also made use of sympathetic magic. At Zape, for example, the Jesuits gathered up the remains of a painting of the Virgin that was burned during the Tepehuan revolt. The ashes were then mixed with holy water, and when given to those who were ill, many reportedly recovered (Perez de Ribas 1944: III, 216). Although this potion and many medicines and herbs had little or no intrinsic value, their use apparently had great psychological value and often helped victims to survive. It should be noted in this regard that there is a considerable body of evidence that indicates that clinical care can make a great difference in whether many individuals live or die from disease²¹.

The great lengths to which many priests went to see to it that the sick were cared for was one of several ways in which the Jesuits strengthened their own cause. At the village or community level, the priests provided an outlet for fears and frustrations that many natives felt following repeated outbreaks of disease. In scenes that were reminiscent of Europe during the plague-ridden Middle Ages (Biraben and Le Goff 1975: 61), the Jesuits organized vigils and public processions that often involved scourging and other acts of self-deprecation. During the epidemic of 1607, for instance, several Acaxee pueblos were the scene of processions involving as many as 1,000 natives who scourged themselves, thus hoping to atone for their sins and halt the epidemic (Perez de Ribas 1944: III, 50). Processions of this kind were common throughout Mexico during the colonial period (Cooper 1965), and apparently were quite therapeutic.

The Jesuits, in general, filled a void left by the failure of native priests and shamans to cope with disease. In their role as priests, the Jesuits offered and directed a variety of public rites that were geared toward bringing rain, securing a good harvest, and, of course, coping with disease (Perez de Ribas 1944: 210-211). The Priests also functioned as shamans and were perceived as such²². Often they were called to invoke their magical incantations, to touch and bless with holy water, and if need be, to administer the sacrament of extreme unction. Although there were numerous occasions when baptism and extreme unction were linked to disease²³, the Jesuits succeeded in saving lives more often than their counterparts, the *hechiceros*. Thus, there always were more natives interested in baptism than there were priests to administer the sacrament.

It would be wrong, however, to conclude that native interest in baptism and priests was the single most important factor governing Jesuit and Indian relations. The Jesuits' policy of reconstituting native adaptive strategies that faltered or collapsed in the wake of disease was of paramount importance, particularly in terms of sustaining native acceptance of missionization. Since the Jesuits received only modest alms from the **Patronato Real**, each priest had to implement economic and organizational strategies that provided income for his assigned mission (Treutlein 1939: 289). Although, as we have seen, many researchers have inferred that these strategies were European in origin, most Jesuits served in a managerial capacity, much as "big-men" do in pre-state societies (Harris 1979). More to the point, the Jesuits served in a managerial capacity much as native caciques had before smallpox and other maladies undermined the structure and functioning of native societies. Accordingly, the Jesuits organized the

division of Indian labor as well as the production, exchange, and redistribution of goods. By requiring their charges to work 3 days a week on communal lands, the Jesuits were able to realize surpluses that could be redistributed among members of the mission community during feasts and times of hunger arising from crop-failures. During a famine in 1655, for example, the priests in the Yaqui missions of Raum and Potam distributed 6,000 daily food rations over a four month period (AGN 1657: 30). Alternatively, food surpluses were sold by the missionary and the profits were used to buy church ornaments or items (e.g. chocolate, rosary beads) that were redistributed among the missionaries' loyal following (e.g. AGN 1657: 32-36)²⁴. Among the latter were **alcaldes**, **fiscales**, and Indian governors who assisted the Jesuits in the administration of the mission community (Perez de Ribas 1944: II, 126-127; Polzer 1976; Spicer 1962, Treutlein 1939, 1949: 266).

Although it has been suggested that the mission community with its requisite economic and social organization was "a new phenomenon of Indian life" (Spicer 1962: 292), archaeological and historical data suggest that, in many important respects, it was not. Indeed, it is argued that many of the rights and responsibilities of the "principal chiefs" were assumed by the Jesuits after Old World diseases undermined the structure and functioning of native societies. Just as native caciques and their subordinates once directed native life from the tops of ramadas or earth platforms (Beals 1943:56; Hammond and Rey 1940: 250), so each day the priest or his assistants appeared at the door of the mission church, "instructing the people in what they are to do" (Bannon 1955: 61). Similarly, through the practice and advocacy of Catholicism, the Jesuits filled a void left by the death or failure of native religions to chart a course through uncertain and

inexplicable times. Although few natives appreciated or grasped the meaning of their new faith (Bannon 1955: 59), the Jesuits can not be faulted in this regard for failing to "revolutionize" aboriginal culture. Indeed, perhaps their greatest legacy is that they recognized the worth of many aspects of native life. Were it not for Old World diseases which the Jesuits unwittingly fostered, their efforts to protect and preserve native peoples undoubtedly would have proven more fruitful.

NOTES FOR CHAPTER VII

1. As part of the process of lineage dismemberment, multilineal residence may have become a necessity, thus insuring that couples would have kin with whom to live and work (Ember and Ember 1972; Service 1962: 137).
2. We know very little about the nature and extent of fictive kinship, aboriginally. Shortly after the Jesuits arrived in Sinaloa, the Jesuits wrote of an "adoption ceremony" that indicates the Cahita or Guasave employed fictive kinship (AGN 1593; Perez de Ribas 1944: I, 166-167; Shiels 1934: 111). The Opata, Yaqui, and Tepehuan apparently all used fictive kinship (Arlegui 1851: 149-150; Nentvig 1764: 62; Spicer 1980: 23)
3. There are numerous examples of societies that used war captives or slaves to argument a declining population following repeated exposure to disease (Ewers 1973: 111; Hartwig 1975, 1978; Jennings 1976: 151-152). Although many groups in the Greater Southwest took women and children captive, it is unclear whether this behavior was a consequence of disease (Beals 1943: 40; Hammond and Rey 1928; Nentvig 1764: 64; Pennington 1980: 215; Ribas 1944: I, 358, III, 18, 137).
4. Perez de Ribas (1944: I, 321, 344-345, III, 270-273) has numerous accounts of *hechiceros* and their attempts to ward off disease.
5. At the time of missionization, the Tehueco of the Rio Fuerte apparently worshipped a deity that was associated with lightning to which offerings were made, entreating him not to spread disease throughout their lands (Perez de Ribas 1944: I, 333). Father Martin Azpilcueta apparently encountered a similar belief among the Eudeve-Opata of Batucos (AGN 1630a).
6. Many Jesuits came from middle and upper class families in Spain (Nieremberg 1889; Perez de Ribas 1896). Had they chose to, many Jesuits could have spent their lives in the relative comfort of a monastery or church in Spain or Mexico City. The men who volunteered for the missions of northern New Spain made a conscious decision to forego all previously known comforts.
7. The Jesuits success with children is exemplified by Perez de Ribas' account of a group of Ocoroni adults who rebelled against mission tutelage. Rather than join their parents, 16 children of the rebels remained at the Jesuit seminary at San Felipe (Perez de Ribas 1944: I, 241-242).
8. Leacock (1980: 36) has noted that Jesuit teachings and prohibitions caused profound social disruption and deep psychological turmoil for men and women

among the Montagnais-Naskapi of the St. Lawrence River. Both men and women had to make difficult decisions regarding acceptance or rejection of corporal punishment, male superiority and authority, divorce, sexual freedom, and premarital chastity — to name but a few.

9. The Jesuits and other Spaniards often complained that it was impossible to explain to the natives Christian doctrine, since the natives had difficulty grasping concepts like eternity, penitence, salvation, immorality, will, spirit — to name but a few (Karns 1954: 245; Treutlein 1949: 231; 1965: 133). Elsewhere in the New World, Amerindian populations also had difficulty grasping Christian principles (Bailey 1969: 20, 139-140; Norbeck 1961: 175).

10. Perez de Ribas's report and that of other interested parties were compiled in response to a request from the King for information about the feasibility of having natives in Jesuit and Franciscan missions pay tithes and tribute. Although it is tempting to think that Perez de Ribas and his Jesuit conferees exaggerated about the poverty of the missions, the testimony of Captain Bustamente and Francisco de Cervantes appear to back the Jesuits up (Hackett 1937: 94-117). General Francisco Martinez de Baeza, the former governor and captain-general of New Mexico did state, however, that an abundance of native grains and grains of Castile, presumably wheat, were raised in Sinaloa, along with all kinds of cattle. Although the general's statement about wheat is at odds with other reports regarding the absence or paucity of wheat grown in Sinaloa, the general reportedly got his information second-hand (Hackett 1937: 118). Perez de Ribas, Bustamente, and Cervantes, on the other, all had first hand knowledge of Sinaloa.

11. The Jesuits, and Faria in particular, drew up the *Apologetico defensorio* to refute charges that the Jesuits were amassing great wealth at the Indians expense, and the expense of Spanish miners and *encomenderos* who were deprived of Indian labor.

12. Nentvig (1980: 23) noted that 1 *fanega* (2.6 bushels) of wheat yielded 25-50 *fanegas*, whereas a *fanega* of corn yielded 100-300 *fanegas*. Piefferkorn (Treutlein 1949: 46) noted that 1 malter (@18 bushels) of corn seed yielded 100 malters or more, whereas wheat yielded 30 or 40 or more per malter.

13. In 1764, Bishop Tamaron y Romeral (1937: 224) also commented on the absence of vineyards in Nueva Vizcaya.

14. DiPeso's research did uncover, however, considerable evidence of cattle that were introduced by the Jesuits.

15. Faria noted that the typical Jesuit residence was a one-story adobe structure, apparently L-shaped or U-shaped, with one or more bedrooms flanking a reception area at the entrance to the house.

16. In chapter 18 of his report, Faria noted that the priests as well as the Indians in Sinaloa did not, for the most part, raise birds, including chickens. As noted, cattle were the principal source of meat protein for natives and priest alike. Writing in the late 1700's, Father Ochs (Treutlein 1965: 177) noted that some Indians liked beef so much that they took fairly large pieces and tied a string to it, chewing on the meat while holding onto the

string for fear of swallowing it too soon. The cattle initially were raised on a ranch near San Felipe. Each year priests in outlying missions were sent an allotment of jerked beef from cattle that were slaughtered in October or November (Pfefferkorn 1949: 99). As the missions increased in number and distance from San Felipe, it became more efficient for each priest to take 30 or more cattle with them when they began a mission (Hackett 1937: 122-123). In 1638, the Jesuits had approximately 8,000 head of cattle on their ranch in Sinaloa and in small herds that were managed by individual priests (AHH 1638, Hackett 1937: 95-105, 122-123). The rapidity with which cattle multiplied is reflected in figures which show that 30 years after Father Marras established a ranch at Matape, what was originally a herd of 600 cattle had grown to 50,000 head (Polzer 1972a: 169).

17. As Jennings (1976: 33) has noted, while native and European technologies cannot properly be compared in absolute terms, in terms of the direct management of America's natural environment, the Indian developed a superior technology. This conclusion is certainly justified, given the wholesale destruction by domesticated animals of land in northern Mexico.

18. As Ember (1982) has suggested, societies that have a pre-contact tradition of curing are more apt to reject their gods when the Gods fail to halt or prevent epidemics.

19. A number of Jesuits commented on native avoidance of those who became ill (Perez de Ribas 1944: III, 262; Treutlein 1949: 219-220; 1965: 174). It is unclear whether the Indians realized through experience what science later confirmed, namely that infectious diseases are most often contracted through close contact with someone suffering from disease.

20. In 1711, a Jesuit lay brother, Juan de Esteyneffer, compiled the *Florilegio Medicinal*, a 3 volume source book on how to diagnose and treat various illnesses. Esteyneffer gathered much of his information from priests that had worked in northwest Mexico (Kay 1977). These missionaries, in turn, apparently acquired much of their information from native apothecaries.

21. The importance of clinical care was emphasized by Mendieta (1945: 174) with respect to the measles epidemic of 1531-35, and also by Florencia (1955: 260) with respect to the typhus epidemic of 1575-81. During the smallpox epidemic of 1898, 163 out of 220 Pueblo Indians died who refused medical treatment. Only 42 out of 412 died who were treated by doctors. Professional care, in effect, reduced the death rate from 74 to 10 % (Stearn and Stearn 1945: 15). Peter (1975: 123) has likewise noted that attempts at consoling the ill do make a difference in terms of whether or not many patients recover from a bout with disease. Along these same lines, there are many documented cases of magical death — instances where sorcery victims failed to respond to medical treatment (McElroy and Townsend 1979: 288). These data suggest that a shaman's diagnosis that a patient was unlikely to recover could have proved to be a self-fulfilling prophecy. It should be noted that, while the priests expended much effort caring for the sick, like other Europeans at the time, they frequently made use of the practice of bleeding patients (Ribas 1944: II, 529; III 67, 95). In doing so, they undoubtedly reduced the chances of many of their patients surviving.

22. The historical record is replete with examples of priests who were viewed as sorcerers, that is, individuals who had the power to do good or harm. Father Tapia, for instance, was taken for a powerful *hechicero* in 1594, when an earthquake shook the region about the Rio Fuerte. Perez de Ribas (1944: I, 210) also wrote of how Tapia's companion, Father Martin Perez, often was visited by an Indian who brought melons and other foodstuffs as payment for Perez's curing him of disease.

23. There were numerous occasions during the Jesuits' tenure in northern New Spain when some of their neophytes rebelled against mission life. As we have seen, the Xixime and Tehueco uprisings (1611-1612) were coincident with outbreaks of disease. Similarly, the Tarahumara uprising of 1650 was precipitated by the death of a child that had been baptized (Dunne 1948: 64). Rebellions were symptomatic of the great anxiety which many natives felt with regard to baptism and other Christian rites. As was the case in other areas of the Americas (Bailey 1969: 81), many natives came to believe that baptism and extreme unction were a cause, rather than a cure for disease (Ribas (1944: I, 345-46; Spicer 1962: 123). This belief was difficult to reconcile with the affection many priests had for their neophytes, and also with the constant help the priests offered during epidemics. The uncertainty and doubts that many natives faced are perhaps reflected in the Yaqui myth of the "talking tree". The myth involves a vibrating tree that transmitted messages to a Yaqui women. The tree told of remarkable things that came true, including the advent of the custom called baptism. The tree noted that those who accepted baptism would forever be subject to death, while those who obtained would be immortal (Spicer 198): 67).

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- 1638a Misiones 25. Historia de las Misiones que han hecho los Religiosos de la Compania de Jesus para predicar el Santo Evangelio en las Indias Occidentales de los Reynos de Nueva Espana.
- 1639 Misiones 25. Puntos de Anua del anno de 1639 de la mission de Nuestro Santo Padre Ygnacio, en la Provincia de Sinaloa, Diego de Banderzype, 4 de Marzo 1639.
- 1639a Misiones 25. Puntos de Anua de la nueba mission de San Francisco Jabier, ano de 1639.
- 1639b Misiones 25. Carta de Lorenzo de Figueroa al Padre Provincial, 29 de Junio 1639.
- 1646 Misiones 25. Puntos de annua del ano de 1646, Mission de San Francisco Xavier, Pedro Pantoxa.
- 1647 Misiones 25. Letras Annuas de la Provincia de la Compania de Jesus de Mexico, ano 1647.
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- 1647b Misiones 26. Annua del Pueblo de Santa Catalina de Tepeguanes.
- 1649 Misiones 26. Carta annua Dela Provincia Dela Compania De Jesus de Mexico; Del ano de 1648 y [1]649, Andres Rada, 10 de Julio 1650.
- 1651 Jesuitas 2-4. Carta de Manuel Truxillo al Padre Provincial, 27 de Julio 1651.

- 1653 Misiones 26. Carta del Padre Geronimo de la Canal al Padre Provincial, 31 de enero de 1653.
- 1653a Misiones 26. Puntos de annua del ano de 1653 del collegio y misiones de Cinaloa.
- 1653b Historia 15. Memoryas Para la Historia de la Provincia de Synaloa. Carta Annua dela Mission de San Ygnacio de los Rios de Hiaqui y Mayo; ano de mil seiscientos cincuenta y tres.
- 1655 Historia 15. Memoryas Para la Historia de la Provincia de Synaloa. Annua del ano de mil seiscientos cincuenta y cinco.
- 1656 Jesuitas (Fichero II-7). Catalogo de la Gente de Confession, que se halla en estas Provincias, Ano de 1656.
- 1656a Historia 15. Memoryas Para la Historia de la Provincia de Synaloa. Anua de la Mission de San Ygnacio del Rio de Mayo y Hiaqui: ano de mil seisciento cincuenta y seis.
- 1657 Historia 15. Memorya Para la Historia de la Provincia de Synaloa. Anua del ano de mil seiscientos cincuenta y siete.
- 1657a Historia 316. Apologetico Defensorio y Puntual Manifesto que los Padres de la Compania de Jesus, Missioneros de las Provincias de Sinaloa y Sonora, Francisco Xavier de Faria.
- 1678 Misiones 26. Relacion de los Misiones que la Compania tiene en el Reyno y Provincias de la Nueva Viscaya en la Nueva Espana echa el ano de 1678 con ocasion de la Visita General dellas que por orden del Padre Provincial Thomas Altamirano hizo el Padre Visitador Juan Hortiz Zapata de la misma Compania.
- 1678a Jesuitas (Fichero II-4). Untitled Informe for the Partido of San Miguel de Oposura, Juan Martinez.
- 1678b Misiones 26. Numero de los Bautizmos, cassamientos, y entierros deste Partido de Guepaca, Banamatzi, y Sinoquipe deste el ano de 1675 hasta el ano de 78, Munoz de Burgos.
- 1758 Jesuitas. Catalogo de los Pueblos de Yaqui y Mayo, Ignacio Lizasoain, 14 de Abril 1758.

AHH (Archivo Historico de Hacienda, Mexico City)

- n.d. Temporalidades 333-141. Copia de un fragmento de vocabulario de alguna lengua indigena [Opata] de Mexico.
- 1638 Temporalidades 2009-1. Memorial al Rey para que no se recenga la limosna de la Misiones y consiera al Senor Palafox en las relaciones a la Compania, Andres Perez de Ribas, 12 de Septiembre 1638.

- 1666 Temporalidades 1126-2. Relacion delo sucedido en el pleito de la Compania con los Religiosos de San Francisco.
- 1684 Temporalidades 279-16. Untitled Informe for the Partido of Aribetzi, Natal Lombardo.
- 1684a Temporalidades 279-3. Untitled Informe for the Partido of Arispe, Felipe Esgrecho.
- 1684b Temporalidades 279-7. Untitled Informe for the Partido of Guepaca [Huepac], Juan Munoz.
- 1729 Temporalidades 17-33. Untitled Informe from the Partido of Baviacora, 10 de Marzo 1729, Julian de Echajoyan.
- 1764 Temporalidades 17-22. Noticias de las Misiones que Administran los Padres de la Compania de Jesus de Nueva Espana, M. Aguirre.
- DHM (Documentos para la Historia de Mexico), Cuarta Serie, Tomo III. Mexico, 1857.**
- 1595 Noticia del Anua del Ano de 1595.
- 1596 Anua del Ano de 1596.
- 1597 Anua del Ano de 1597.
- 1598 Anua del Ano de 1598.
- 1600 Testimonio Juridico de las Poblaciones y conversiones de los serranos Acaches, hechas por el Capitan Diego de Avila y el venerble Padre Hernando de Santaren por el ano 1600, Martin Duarte.
- 1601 Carta del Padre Nicolas de Arnaya Dirigida al Padre Provincial Francisco Baez el Ano de 1601.
- 1607 Anua del Ano de 1607.
- 1608 Carta del Padre Luis de Ahumada, Dirigida al Padre Martin Pelaez, Provincial de aa Compania de Jesus el 13 de Noviembre de 1608.
- 1618 Carta de Alonso del Valle al Padre Provincial, 9 de Mayo de 1618.
- 1645 Relacion de los sucedido en este reino de la Vizcaya desde el ano de 1644 hasta el de 45 acerca de los alzamientos, danos, robos, hurtos, muertos y lugares despoblados de que se saco un traslado para remitir al padre Francisco Calderon, provincial de la provincia de Mexico de la Compania de Jesus...Nicolas de Zepeda, San Miguel de las Bocas, Abril 28 de 1645, mas addendum de 11 de septiembre de 1645.
- 1651 Noticias de las Misiones Sacados de la Anua del Padre Jose Pascual; Ano De 1651.

- 1653 Carta que Escribe el Padre Gaspar de Contreras al Padre Provincial Francisco Calderon el Año de 1653.
- 1658 Puntos de Anua, Año 1658, Mission de Nebomes de N.P.S. Francisco de Borja.
- 1662 Puntos de Anua de estos diez años que he asistido en este partido de San Pablo, de la misión de Taramuras y Tepehuanes (de unas y otras hay), desde el año de 1652 hasta este de 1662 sumariamente lo que ha pasado cuanto a lo espiritual.
- 1668 Puntos de anua de esta misión de Taramures de la Compañía de Jesús de estos años próximos pasados, hecha a catorce de Noviembre de 1668.
- 1669 Patrocinio del glorioso apóstol de las Indias S. Francisco Javier en el reino de la Nueva Vizcaya, año de 1669.
- 1730 Estado de la provincia de Sonora, con el catálogo de sus pueblos, iglesias, lenguas diversas que en ella se hablan y leguas en que se dilata; con una breve descripción de la Sonora Jesuítica, según se halla por el mes de Julio de este año de 1730, escrito por un padre misionero de la provincia de Jesús de Nueva España.

HHB (Hubert H. Bancroft Collection, Bancroft Library, University of California, Berkeley)

- 1617 Carta del Padre Andres Perez al Padre Provincial, 13 de Junio 1617.
- 1633 Mexican Manuscript 7. Historia de las misiones apostolicas, que los clerigos regulares de la Compañía de Jesús an echo en las Indias Occidentales del reyno de la Nueva Vizcaya, Juan de Albizuri.

MCC: Fra. Marcellino da Civezza Collection (Pontificio Ateneo Antoniano, Rome), University of Arizona Film 305, University of Arizona Library, Tucson.

- 1777 Breve resumen historial de esta Santa Mission de Santa Maria de Baserac, Angel Antonio Nunez, 23 Octubre 1777.

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